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COGNITIVE AND SOCIAL DEVELOPMENT IN DISABLED AND NON-DISABLED CHILDREN

BY

© RICHARD VOLPE

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Cognitive and Social Development in Disabled and Non-Disabled Children" submitted by Richard Volpe in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

The purpose of this study was to empirically test the proposition that one of the social psychological consequences of orthopedic disability is the impairment of cognitive and social development. The assumption underlying this empirical generalization asserts that normal development in these areas is a function of typical social experience and involvement. That is, ontogenetic development is a response to the everyday requirements of conflict and defense in the social arena.

The major hypotheses were advanced that orthopedically disabled children would, as a result of restrictions in normal social experiences arising from their deviant social position with its accompanying role expectations of dependence and inferior status, manifest a lower level of cognitive and social development than non-disabled children.

The subjects included two major groups of boys and girls between six and twelve years of age. One group was comprised of forty disabled children who were precision matched according to age, sex, and IQ to the other group of non-disabled children.

The social experience and involvement of these groups was conceptualized in the patient-agent construct and determined by the Children's Social Relations Interview Schedule covering the dimensions of succorance-nurturance, restraint-unrestraint, inautonomy-autonomy. The Children's

Social Relations Rating Scale was employed by the subjects' primary teacher to ascertain information regarding the dimensions of dependence-independence. Moreover, cognitive development was assessed in terms of the conservation, classification, and serialization dimensions of the Concrete Operations Tasks. Finally, social development was measured by the Role Taking Task.

Through these indicators, the specific hypotheses predicted that the non-disabled group of children would enact the agent role to a significantly greater extent than the disabled group and that the disabled children would enact the patient role to a significantly greater extent than the non-disabled group. Likewise, additional specific hypotheses predicted that the disabled children would display a significantly lower level of concrete operations achievement and role taking activity than the non-disabled group of children.

Difference of means tests for related samples indicate support for these hypotheses, excepting the marble and clay (quantity) problems, with a probability of chance occurrence of less than .05.

On the basis of these findings it was concluded that typical social experience and involvement are necessary for the achievement of normal levels of cognitive and social development.

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CHAPTER I

OBJECTIVES AND THE PROBLEM

The purpose of this investigation is to explicate some of the social psychological aspects of cognitive and social development. Most studies in this area have dealt with dimensions of cognitive and social development separately. The fruitfulness of their simultaneous consideration is implied in the following comment by Jean Piaget:

> There is a remarkable convergence between the stages of social collaboration and that of intellectual operations, to such a point that one has the impression that there are here two complementary and inseparable aspects of the same process of equilibration. . . . Developmentally speaking, the progressive organization of interindividual reciprocities and that of operational reciprocities in the field of thought, certainly constitute correlated phenomena.[1]

While Piaget recognizes the relatedness of cognitive and social development, he has largely devoted his study to the "cold categories" of cognitive experience such as space, time, and number.[2] The insights of George Mead in regard

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[1] J. Piaget, "Discussions on Stages of Development," in O. Tanner and B. Inhelder, Editors, Discussions on Child Development, World Health Organization Study Group, (New York: International Universities Press, 1956), p. 20.

[2] Piaget's bibliography spans five decades and contains some thirty volumes and over one hundred articles. Of particular relevance here is the following work that provides an overview of his conceptual scheme. J. Piaget, The Psychology of Intelligence, (London: Routledge and Kegan Paul, 1950).

A lucid introduction to his work is provided in

to social development will be employed in this investigation as a sociological complement to Piaget's psychology.[3] Separately, the contributions of these men are deficient in their specification of the social psychological mechanisms that enable development from one stage to another. The aim of this study is to specify and empirically test a rationale for stage transitions within the conceptual schemes provided by Piaget and Mead.

This hoped for explication and complementation rests on the assumption that insight into typical social psychological processes may be obtained by studying atypical human experience. The following investigation will, therefore, attempt to characterize and contrast the social psychology of orthopedically disabled and non-disabled children.

A number of students of childhood socialization,

H. Ginsburg and S. Opper, Piaget's Theory of Intellectual Development, (Englewood Cliffs, New Jersey: Prentice Hall, 1969).

One of the most authoritative and comprehensive reviews of Piaget's theoretical and research contributions, is J. Flavell, The Developmental Psychology of Jean Piaget, (New York: D. Van Nostrand, 1963).

[3] The essentials of Mead's position pertinent here are contained in G. H. Mead, Mind, Self, and Society, (Chicago: University of Chicago, 1934).

An excellent summary of Mead's thought introducing a collection of readings exploring its implication, is B. Meltzer, "Mead's Social Psychology," in J. Manis and B. Meltzer, Symbolic Interaction: A Reader in Social Psychology, (Boston: Allyn and Bacon, 1967), pp. 5-25.

most prominently Harry Stack Sullivan[4] and Erik Erikson[5], have reported that the tendency to be actively concerned with the thoughts and feelings of others is a developmental product arising from an as yet unspecified sequence of typical socialization experiences between the ages of six and twelve. In Piaget's conceptual scheme, this phase is marked by the achievement of concrete operations and the capacity to "decenter" or shift perspectives on phenomena.[6] According to Mead, this period involves a transition from the "play stage" (characterized by enacting the role of significant others) to the "game stage" (characterized by taking the role of generalized others).[7] Prior to this epoch, children are egocentric, unable to shift to perspectives besides their own by taking the role of others.

The intent of this investigation is to test the assertion that the transition from egocentricity to sociocentricity is a response to the dialectic of social life. That is, human sociality develops as a result of typical conflict and defense in the social arena. In the child's

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[4] H. S. Sullivan, The Interpersonal Theory of Psychiatry, (New York: W. W. Norton, 1953), pp. 135-297.

[5] E. H. Erikson, Childhood and Society, (New York: W. W. Norton, 1963), pp. 241-274.

[6] Piaget, op. cit., p. 121.

[7] Mead, op. cit., pp. 150-164.

world, the dialectical processes involve cognitive structuring, destructuring, and restructuring arising from changes in a social and physical world that is becoming increasingly large and complex. With growing complexity, it seems likely that experiences in the changing field will become more at odds with the validations acquired heretofore. The new varieties of expectations and demands may be contrary to or inadequately explained by previous experience. Presumably, peer relations in play and game activities within the context of typical cultural sequences, such as school gradations, make for uniformities in social experience and involvement and, consequently, cognitive and social development among typical children. Because of society's definition of the role of the disabled as deviant, it is contended here that children who are disabled will be restricted in typical social experience and involvement and will, as a consequence of this barrier, manifest cognitive and social development on a level lower than that of non-disabled children.

The Problem

The major question to be answered by this investigation then asks: To what extent do disabled children show differential social experience and involvement and cognitive and social development than non-disabled children?

The chapters and sections contained herein may be previewed as follows: Chapter I outlines the objectives of

this study and presents the problem under consideration; Chapter II describes the thoughts of Piaget and Mead as they relate to cognitive and social development; Chapter III advances a notion of stage transformation and restriction in terms of dialectical processes; Chapter IV indicates the methods employed in testing propositions derived from the theoretical rationale; Chapter V presents the outcome of the investigation in terms of qualitative observations, an evaluation of the instruments employed, and the tests of the hypotheses; finally, Chapter VI examines the practical and theoretical implications of this investigation.

CHAPTER II

THEORETICAL RATIONALE

Cognitive Development: Piaget

Piaget's principal scientific concern is the theoretical and experimental investigation of the qualitative development of intellectual structures. It might appear that Piaget's contributions are restricted in their relevance to intracranial phenomena and, thus, limited in application to interpersonal or sociological problems. On the basis of Piaget's central thesis that mental structures are the product of interaction between the organism and the environment, this observation can be disputed. Knowledge is action rather than a reflection of innate or environmental patterns. While Piaget does not specify the sociological aspects of the environment as interactant, he does provide insight into the "intellectual side of enculturation".

Rousseau, the political theorist, perceptively observed some time ago that "the child is not a small grown-up, but has needs of his own, and a mentality adapted to these needs."[8] According to Piaget, children do not respond to events as adults because they lack the requisite cognitive equipment. Cognition may be defined as the

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[8] Piaget, op. cit., p. 156.

provision of meaning to personal experience. In this context, meaning is a clearly articulated and precisely differentiated conscious experience that emerges when potentially meaningful signs, symbols, concepts, or propositions are related to and incorporated within a given cognitive structure on a non-arbitrary and substantial basis.[9] Cognition involves organization, systems of meaning used to identify and describe objects or events.

As a basis for conceptualizing thought processes, Piaget employs the somewhat unique notion of intelligence defined as "a form of equilibrium toward which all cognitive structures tend."[10] Implied in this definition is a harmonious adjustment between cognitive structures and the environment. Cognitive functioning involves biologically inherited modes of interacting with the environment. While cognitive functions remain invariant, cognitive structures change systematically as the child develops. There are two basic functions: Organization and Adaptation. Every act is organized and the dynamic aspect of organization is adaptation.

Adaptation involves two complementary subprocesses: Accommodation and Assimilation. The process of accommodation describes the organism's tendency to change in response to environmental demands. Assimilation is the complementary

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[9] _Ibid._

[10] _Ibid._, p. 15.

process by which the organism deals with the environment in terms of current structures. Accommodation involves the transformation of structures in response to the environment, while assimilation involves dealing with the environment in terms of pre-existing structures. Recall that accommodation and assimilation are "functional invariants", characteristic of all biological organisms regardless of the varying content of these systems. Behavior is most adaptive when accommodation and assimilation are in equilibrium or balance. This state is, however, only temporary, insofar as imbalance or disequilibrium are necessary for development or increased differentiation and complexity.[11]

Cognitive development is, thus, a succession of structural changes. In Piaget's theory, these structural units, called schemata, are equivalent to Hebb's notion of "mediating processes" that form a framework onto which sensory data can be fit.[12] This framework is continually

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[11] It is interesting to note the implications of this position in terms of psychopathology elaborated in K. Dabrowski, Positive Disintegration, (Boston: Little, Brown and Co., 1964). In essence, he argues that what is considered to be symptomatic of mental illness may best be considered evidence of creativity and growth processes.

[12] D. O. Hebb, The Organization of Behavior, (New York: J. Wiley and Sons, 1949).

changing to better assimilate input.[13]

Basic to Piaget's conceptual scheme is the notion of developmental stages. Changing structures are partitioned into stages whose qualitative similarities and differences serve as conceptual landmarks. Recognizing the fact of individual and cultural differences, he employs the concept of stage to roughly approximate levels of achievement and acquisition. What is important is that the sequence of these stages is constant and invariant. Preceding stages are basic to and become an integrated part of succeeding stages.

Cognitive structures, in addition to being altered themselves, in turn alter experience by their increased capacity to take into account different aspects of phenomena. Structures develop in such a way as to suggest a pattern of progressive and sequential expansion of total schemata. Cognitive structures change and are changed by behavioral responses to the environment. Behavior that is evolving and restructuring in one area coordinates with new cognitive organization.

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[13] W. Buckley in Sociology and Modern Systems Theory, (Englewood Cliffs, N.J., Prentice Hall, 1968) employs the concept of "morphogenesis" to describe this process on the societal level. The Piagetian system's perspective is quite compatible with the position taken by L. von Bertalanffy, General Systems Theory, (New York: George Braziller, 1969), and L. von Bertalanffy, "Comments on Piaget's Paper," in Tanner, op. cit., 1960.

From Piaget's conceptualization of cognitive development, it follows that it should be possible to distinguish at any given time cognitive achievements related to prior and present stages. Moreover, restriction in experience within the environment should be reflected in cognitive capacities.

Piaget has found that structures develop to a maximum program or equilibrium for a particular stage and, as the environment becomes more complex, new forms of adaptation are called for that induce disequilibrium at another level of development.[14] The ever increasing experience involved in the adaptation process broadens the complexity and range of applicability of existing structures, and generates the development of new structures leading from one stage to the next. The child's level of adaptation depends on where he is in terms of developing cognitive structures. Adaptation leads to equilibrium which reflects the maximum of a stage and endures until the next phase of development begins.

Accommodation and assimilation thus represent the organism's active interchange with the environment. This adaptation process results in the development of "internal representations" known as groupings. A group is a system that consists of a set of elements and an operation on

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[14] J. Piaget, Six Psychological Studies, (New York: Vintage, 1968), p. 101.

these elements. An operation is "any representational act that is an integral part of an organized network of related acts."[15] It is these groupings, the capacity to group relations, that become increasingly complex and effective during the course of cognitive development.

Schemata, as indicated previously, are the primary units of organization by which past experiences are stored. Moreover, they account for the influence of previous experience on the behavior patterns present, and the ability to modify responses to alterations in the environment. As schemata develop, they must be in equilibrium with each other and must, therefore, adapt to changes in one another. That is, they must accommodate and assimilate to new mental structures appearing in related schema. This organization of structure makes it possible to interpret many apparently different types of behavior in terms of an underlying structural whole.

Cognitive operations and the development of schemata are characterized by periods of preparation and finally, achievement. During this preparatory period, behavior may lack stability, or it may reflect only sporadic use of new structures. What is essential is that the structures have at least some employment. The final period of achievement is reflected by the attainment of equilibrium. Development

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[15] Flavell, op. cit., p. 55.

is, thus, a constant progression of structural disequilibrium giving way to structural equilibrium.

The concepts of horizontal and vertical décalage are employed by Piaget to refer to the differential rate of acquisition of related structures. Décalage refers to the repetition or displacement of cognitive structures across the stages of development. Horizontal décalage is a repetition that takes place within a single stage of development.[16] That is, the application of a cognitive structure to one kind of task and later in the same stage applied to another. For example, the conservation of quantity is achieved prior to the conservation of weight, although the general level of the function is the same for both.[17] Vertical décalage refers to repetition in the application of structures that occur at different stages.[18] This describes the formal similarities that exist between structures at different levels or stages of their operation on the same content. Illustrative is a child who behaves in a certain way toward an object regardless of alternative approaches that may be visible from other perspectives.

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[16] Flavell, op. cit., p. 20.

[17] This finding is revealed in a study to be reviewed later, by B. Inhelder reported in Tanner, op. cit., p. 43.

[18] Flavell, op. cit., p. 21.

The child's response is limited to immediate sensory stimulation and fails to take into account other points of view. In a later stage, the child will be able to represent different perspectives to himself in thought rather than acting in terms of only one.[19]

Piaget's scheme of development is built around three fundamental stages.[20] The first, from birth to five years, is known as the sensori-motor stage. During this

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[19] The above example is derived from Piaget's famous "mountain experiment" reported in J. Piaget, "Principal Factors Detemining Intellectual Evolution From Childhood to Adult Life," in Factors Determining Human Behavior, (Cambridge: Harvard University Press, 1937), pp. 32-48. This interesting study is described in Piaget's own words as follows:

> The child is placed opposite a small model of three mountains, and given a certain number of colored pictures of these mountains; he is then asked which of the pictures show the mountains from the positions occupied successively by a doll on the mountains in the model. The function of age in this development of these reactions is very clear. The little ones do not understand that the observer sees the mountains quite differently from different points of view, and hence they consider their own perspective absolute. But the older ones discover the relativity necessary to objectivity after a number of systematic errors due to the difficulty in coordinating the relationships in question.

[20] This brief summary of Piaget's theory of intellectual development follows the excellent framework of stages provided in B. Inhelder, "Piaget's Theory of Intellectual Development," in W. Kessen and C. Kuhlman, Editors, Thought in the Young Child, Monographs for the Study of Child Development, (Lafayette, Indiana: Purdue University Press, 1962), pp. 19-34. This concise but authoritative article can also be found in R. Furth, Piaget and Knowledge, (New York: International Universities Press, 1969), pp. 22-40.

period, the infant manipulates the world through motoric action. Perception and thought are dominated by egocentrism, or the single perspective of the child. The infant's attention is centered on this one feature and he is unable to shift to other perspectives and take into account other aspects or characteristics.

The second stage of concrete operations (the one of concern in this investigation, from six to twelve years) involves action that can be carried out internally rather than being expressed motorically. Data about the world can be internally organized and selectively used in solving problems. Internal representations are possible during this stage. These operations have the characteristic of conservation and reversibility.

The first grouping of concrete operations occurs with the coming into existence of the capacity to recognize conservation of the whole. This capacity is a requisite of role taking activity and is, therefore, of considerable import in the development of sociality. The conservation principle refers to the capacity to recognize constancy between self and environment. Illustrative of this is Piaget's early finding that once an object is passed out of an infant's sight, such as being covered by a hankerchief, its existence is apparently thought to cease.[21]

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[21] J. Piaget, The Language and Thought of the Child, (London: Routledge and Kegan Paul, 1926).

Reversibility refers to the mental operation that accounts for immediate compensation, re-establishing equilibrium in the representation of a physical system, after disequilibrium has occurred in the representation of that system.[22] That is, an operation is reversible in that it corresponds to an inverse operation. Reversibility is the basis of concrete operations. With conservation, the child can attribute permanence to objects or qualities in spite of perceptual differences. He is, for instance, able to compensate for changes in shape and is not dominated by sensory impressions. He understands that certain fundamental features of things remain constant over change, or if they change, the change is reversible. The whole remains, whatever might be the arrangement of its parts, the changing of its form, or its displacement in space and time. With conservation, the child is able to handle transformation of the physical world in reality and thought. The structures exist during this stage for awareness that modifications compensate for each other.

The child is now capable of decentration or the mental shifting to other perspectives. That is, he is able to focus on different aspects of an object or situation, taking them all into account. In social relations he is not bound by his egocentricity or his single personal perspective.

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[22] J. Piaget, The Construction of Reality in the Child, (New York: Basic Books, 1954), p. 101.

Rather, he can actively engage in taking the role of others and accounting for multiple aspects of situations.

Concrete operations are not formed all at once. As noted previously, Inhelder has reported that the conservation of quantity precedes that of weight and volume.[23] The major focus here will be on the initial development insofar as it provides an indicator of the ability to decenter. A related operation to be assessed is that of classification. Prior to concrete operations in the last part of the sensori-motor stage, the child recognizes the permanence of individual objects but not the collection of objects. Class operations are not yet construed, and there is an absence of understanding the concept of plurality. Classification is derived from internalizing overt activities -- grouping objects according to some aspect, perceived as similar. Included are the operations of fitting classes together according to some similar aspect. Before classification operations are present, the child is unable to think simultaneously of both the whole and the parts due to the egocentric character of his thought. Focus on the part-part relationship, and the part-whole relationship escape the child, because he lacks a conception of reversibility.[24]

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[23] Tanner, op. cit., 1954.

[24] Piaget, The Construction of Reality in the Child.

Another aspect of this stage to be considered in this study is the operation that permits the child to denote ordered differences. The child lacking this operation is unable to see that each unit in an asymmetrical series is simultaneously perceived in terms of both direct and reverse relational operations, made possible by the development of reversibility.[25] This operation is revealed through serialization or the building up of units into transitive asymmetrical series.

The focus of this investigation will be on the concrete operations of conservation (quantity and weight), classification, and serialization. All of these operations, with the exception of conservation of weight which will be employed as a check, occur simultaneously. Piaget has outlined a number of tasks that represent their achievement. The particular tasks, involving clay, marble, and straw problems, will be outlined in another chapter. Their particular selection was based on their extensive cross-cultural employment and favorable reports in terms of the reliability and validity studies outlined in the next section.

The third and final stage in Piaget's conceptual scheme (from ages thirteen to twenty-one) heralds the development of logic or formal operations. The adolescent can now go beyond the information given and think of

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[25] *Ibid.*

possible variables and potentialities. He is not constrained by what is before him or experienced. He can abstract and operate on hypothetical propositions.[26]

Related Studies

Besides his own, research on Piaget's conceptual scheme has been widespread and extensive. The overall studies and their findings have been adequately summarized in Flavell[27] and Opper and Ginsburg.[28] The studies selected for review here are only those directly related to this particular investigation. More specifically, the studies considered deal with the concrete operations of conservation, classification, and serialization.

Pinard, at the University of Montreal, has been systematically replicating Piaget's experiments. He has given 700 French Canadian children a series of sixty-two tests including the ones employed in this study. The children have been precision matched according to sex, SES, number of siblings, and academic achievement.

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[26] Of possible interest to those dealing with adolescents is the finding that there is a resurgence of egocentrism during this stage. Piaget has observed that the adolescent's use of newly derived thought forms tends to be idealistic and often inapplicable to the real world. Thus, he tends to follow idealized causes full force and only later does his reality widen. In particular see B. Inhelder and J. Piaget, The Growth of Logical Thinking from Childhood to Adolescence, (New York: Basic Books, 1958).

[27] Flavell, op. cit.

[28] Opper and Ginsburg, op. cit.

Preliminary findings uphold Piaget's conclusions with only minor differences in the chronology of stage achievements.[29] Insofar as cognitive development reflects environmental differences, variations are to be expected. The confirmation of the constant and invariable sequence is what is important in terms of Piaget's theory.

Dodwell gave the Piaget tasks used in this study to kindergarten, first-, and second-grade Canadian children, and found all the major responses reported by Piaget. His study suggests that the ability to count was no guarantee of success on the conservation of number tasks. Moreover, he found significant age trends for tasks involving conservation of discontinuous qualities, and that tasks of unequal difficulty were responded to differentially. He ascribes these findings to the sequential development of concrete operations. The Piaget tasks employed were found to demonstrate satisfactory test-retest reliability.[30]

Cross-cultural confirmation of Piaget's concrete operations tasks is further provided in Hyde's study of

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[29] A Pinard, "Stage in Piaget's Cognitive Developmental Theory," in D. Elkind and J. Flavell, Essays in Honor of Jean Piaget, (New York: Oxford University Press, 1969).

[30] P. Dodwell, "Children's Understanding of Number and Related Concepts," C.J.P., (Vol. 14, 1960), pp. 191-205.

British Creole and Somali Indian children.[31]

Conservation tasks were administered by Elkind to American children ranging in age from four to seven, and were found to display the reported sequence of concrete operations. Moreover, he correlated conservation scores with WISC scores and found positive but low association.[32] In another study, he correlated Kuhlman-Anderson IQ scores of twelve- to fifteen-year-olds and their performance on the conservation tasks and found low but significant correlations.[33] In still another study, he used the same ball of clay tasks employed in this investigation on a sample 175 children five to eleven years of age. He found that each type of conservation (quantity and weight) was age dependent and thus supported Piaget's notion of developmental sequence.[34]

Smedslund has reproduced a number of Piaget's studies of concrete operations using groups of Norwegian children. His findings support Piaget's conclusions and

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[31] D. Hyde,"An Investigation of Piaget's Theories of Development of the Concept of Number." (Unpublished doctoral dissertation, University of London, London, England, 1959).

[32] D. Elkind, "The Development of Quantitative Thinking: A Systematic Replication of Piaget's Studies," J.G.P., (Vol. 98, 1961), pp. 37-46.

[33] D. Elkind, "Quantity Conceptions in Junior and Senior High School Students," C.D., (Vol. 32, 1961), pp. 551-560.

[34] D. Elkind, "Children's Discovery of the Conservation of Mass, Weight, and Volume: Piaget Replication Study II," J.G.P., (Vol. 98, 1961), pp. 219-227.

suggest, as did Elkind's studies, that proficiency in conservation of discontinuous quantities comes before, or is easier than, that of continuous quantities.[35]

Feigenbaum, employing conservation tasks of discontinuous quantities with 146 subjects four to seven years of age, found that these tasks were highly correlated with age and IQ. In addition to these supportive observations, he suggests that changes in task parameters, such as reducing the number of beads in the bead task, resulted in slight variations in performance.[36]

Issues in the Study of Cognitive Development

The studies described above reflect the general support given to Piaget's conceptual scheme in numerous replications. Much research in this area, to be reviewed in a later section, has now moved into problems of cognitive training.

This occurrence is not to be taken as evidence of closure regarding issues in the study of cognitive development. Flavell in his critique of Piaget's work has outlined the following shortcomings: (1) Vagueness, inconsistency, and ambiguity in conceptualization; (2) Upward-

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[35] J. Smedslund, "The Acquisition of Conservation of Substance and Weight in Children," in D. Ausubel, Readings in Cognitive Theory and Research, (New York: Holt, Rinehart, and Winston, 1965).

[36] K. Feigenbaum, "An Evaluation of Piaget's Study of the Child's Development of the Concept of Discontinuous Quantities." Paper read at the A.P.A., New York, 1961.

downward relating of theory and research; and, (3) Lack of attention to matters of experimental design and data analysis.[37]

Braine has pointed out additional limitations in both the data and procedures in Piaget's studies. He argues that Piaget does not use experiments to specify theoretical concepts and test propositions, but merely to illustrate. Moreover, he is critical of Piaget's reliance on verbal methods insofar as the child may have the ability to perform an operation without having the ability to comprehend instructions.[38]

Piaget and his associates have acknowledged some of these shortcomings, and their latest contributions reflect their serious consideration.[39] These problems are, however, issues in the behavioral and social sciences in general, and should be kept in perspective. Piaget has not succumbed to them, nor has he become consumed by them. His contributions have been prodigious in spite of them.

Kessen's criticism of Piaget's theory of cognitive development is directly related to the problem under consideration in this investigation. He contends that

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[37] Flavell, op. cit., p. 427.

[38] M. Braine, "The Ontogeny of Certain Logical Operations: Piaget's Formulations Examined by Non-Verbal Methods," P.M., (Vol. 73, 1959).

[39] Opper and Ginsburg, op. cit., pp. 11-12.

although Piaget has outlined the structure of cognitive development, he has failed to specify the social psychological mechanisms of stage transformations.[40]

This study will attempt to deal with this latter problem specifically and, in addition, manifest awareness of the former criticisms by displaying the appropriate correctives.

In summing these sections, Piaget's conceptualization of cognitive structures in terms of the dynamics of equilibration processes suggests that changes on the cognitive level parallel changes on the environmental level. Cognitive development is related to the requirements of maturational, physical, and social experience. Equilibration is the factor overriding each of these modes of influence.

Restrictions placed on experience in these areas would presumably influence cognitive development. Uniformities in experience, such as grade levels in school, should provide a sequence of typical experiences that will introduce developmental consistencies. The atypical experience of orthopedically disabled children should then manifest itself in cognitive achievements. Specific propositions regarding the possible direction this atypical experience might take will be presented in a later chapter. For now, a preview of the next section is contained in the following

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[40] Kessen, "Stage and Structure in the Study of Children," op. cit., p. 79.

assumption (No. 7) of cognitive theories of socialization outlined by Kohlberg:

> All the basic processes involved in "physical" cognitions, and in stimulating developmental changes in these cognitions, are also basic to social development. In addition, however, social cognition always involves role-taking, i.e., awareness that the other is in some way like the self, and that the other knows or is responsive to the self in a system of complementary expectations. . . .[41]

Social Development: Piaget and Mead

Social development refers to the ontogenetic aspects of socialization. Socialization involves, in addition to direct tuition, the vicarious processes of imitation and identification. Central to social development is the learning of role expectations -- the bridge between social structure and roles.

Role expectations are comprised of rights, privileges, duties, and obligations surrounding an occupant of a social position in relation to persons occupying other positions. Role expectations while stable are not entirely fixed, insofar as they are to some extent crescive in the ongoing exchange of social interaction.

The notion of role expectation is a cognitive concept rooted in the covert cognitive process of role taking -- cognizing the role attributes of others by

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[41] L. Kohlberg, "Stage and Sequence: The Cognitive Developmental Approach to Socialization," in D. Goslin, Handbook of Socialization Theory and Research, (Chicago: Rand McNally, 1969), p. 349.

symbolically putting oneself in their place.[42] The capacity to take the role of the other, adopt the attitude of the other, and see things from his point of view is a developmental product. The cognitive capacity to handle multiple perspectives is founded upon the achievement of concrete operations as outlined in a previous section. The concept of social cognition is probably the most apt characterization of the interplay between cognitive and social development. For historical reasons, however, the term role taking will be employed in this discussion.

As pointed out previously, Piaget is largely concerned with the "intellectual side of enculturation". His chief aim has been to trace and characterize cognitive development in children. His contribution can be employed to provide insight into other aspects of development as well.

Piaget suggests that in an early stage of development, there exists a mode of cognition he calls egocentrism: that is, seeing the world in terms of primarily one's own point of view. Only after the achievement of concrete operations in a later stage does there exist the capacity to employ multiple perspectives. The egocentric child is "centered" upon phenomena. This refers to the dominance of one object or situation in the child's thought, rather

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[42] Mead, op. cit., p. 364-373.

than equal awareness of all or several aspects of an object or situation.[43] Later forms of thought are characterized by the ability to coordinate and place in relationship all aspects of an object or situation. Both this "centering" on a particular aspect of an object in accordance with the child's own action and the primacy of his own point of view are expressions of a failure to shift back and forth and take into account more than one aspect of an object.

With the coming of those forms of thought that permit differentiation or the capacity to compare and contrast characteristics of objects, understand the relationship of these characteristics, and coordinate accessible actions, the child is freed from egocentricity. Egocentricity is an incapacity to distinguish his point of view from others through failure to "group" points of view, inability to be aware of, take into account, and relate significant aspects of a situation. In short, the egocentric child is unable to take the role of others. The capacity to "group" or coordinate other perspectives is characteristic of the form of thought developing between the ages of six and twelve.

Role taking is, then, the capacity to perceive a situation from the point of view of someone else. This

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[43] J. Piaget, Judgment and Reasoning in the Child, (London: Routledge, 1951), p. 231.

activity may or may not involve taking the point of view of someone known in previous contexts. Implied is the seeking out and discovering of the other's role attributes, rather than judging solely on the basis of consequence. Just as the attainment of physical reciprocities implies being able to perceive more than one thing, role taking activity implies that the child can perceive more than one view of the interpersonal or emotional aspects of an event. In a sense, the child has obtained a form of objectivity when he is no longer dominated by egocentric modes of thought. In intellectual reciprocities, this is seen in the capacity for the assumption of the permanent identity of an object. It is expressed in social reciprocities by the recognition of the permanence of self and others. The child is no longer dominated by or dependent upon the immediately perceptible, and can begin to achieve the capacity to perceive complex properties of objects, such as the multiple points of view of others.

Piaget's conceptualization of moral development may serve as illustration and summary of his contributions in this area.[44] The human organism is seen as evolving from a primitive state of egocentrism (a period in which the cognizer sees the world from only his point of view -- narrowly, in terms of his own concrete experience, as if he

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[44] J. Piaget, The Moral Judgment of the Child, (New York: Free Press, 1965), pp. 327-406.

were wearing blinders and were unaware of the perspectives of others), to a more advanced state of sociocentrism or relationalism (a period characterized by the active penetration of objects of cognition in an attempt to gain knowledge of the points of view of others). In the course of these two epochs in cognitive growth, there appear two corresponding phases of moral development. The first form of morality is based on heteronomy which is characterized by constraint and duty. Responsibility is unilateral. The child is inferior in relation to superior adults. Rules are sacred and wrongdoing is viewed objectively. In brief, this phase is one of moral realism. The second phase, in contrast, is based on autonomy characterized by cooperation and solidarity. Responsibility is mutual. The child relates to others as peers in terms of reciprocal respect. This allows for moral spiritualization or the viewing of moral rules as abstract and subject to interpretation. Piaget's central thesis, that ontogenetic growth is a result of the interplay between thought and action, enables a structural interpretation of the change from heteronomy to autonomy. A sociological perspective, to be outlined in detail in a later section, makes it possible to conceptualize this transition in which genuine logic comes to replace egocentric logic and moral realism as a consequence of sharing the perspectives of others through role taking.

In terms of the conceptual scheme outlined by Mead and advanced in the Symbolic Interactionist position[45], the egocentrism of the phase of heteronomy may be interpreted as one of little or no role taking activity and a self conception based upon immediate and concrete experience. Only through the turning back of social experiences, becoming an object to oneself, does the person come to have a truly social self. The essence of this process is what Turner has referred to as reflexive role taking.[46]

A discussion of Mead's notion of meaningful social interaction may illuminate his position as it is relevant to this investigation.

According to Mead, role taking activity is a consequence of the acquisition of symbols and a progressive cognizance of their significance. Significance is established when the response elicited by a symbol is the same for the one who produces it as the one who receives it.[47] Meaning is, thus, a variable ranging in this process from the absence of coincidental responses to total coincidence. As such, meaning is a central factor in the

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[45] H. Blummer has provided a generally good statement of this perspective in Symbolic Interactionism: Perspective and Method, (Englewood Cliffs, N.J.: Prentice Hall, 1969).

[46] R. Turner, "Role Taking, Role Standpoint, and Reference-Group Behavior," A.J.S., (Vol. 16, 1956), p. 317.

[47] Mead, op. cit., p. 75.

adjustment of human beings through role taking activity. Human beings respond to one another on the basis of the meaning of gestures. Gestures become significant symbols when they come to stand for the entire social act and this meaning is shared by others. In other words, meaning comes to be located in the sign function of the symbol. Thus, mutually understood gestures are significant symbols. The gesture, a forecast of what is to come, may be recognized by the individual who displays it, but only becomes significant when it arouses the same response in others.[48] Meaning is, thus, an adjustive response to another. The meaning of a significant gesture is found in the person who is addressed. In much the same way, meaning can only be conscious to the individual if it stimulates him as it would others. The individual must be able to make himself an object as he would in taking the role of the other. This is the essence of reflexive role taking.

It is obvious that in Mead's conceptual scheme the concept of role taking holds a prominent position as a uniquely human capacity acquired in the process of general

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[48] The implication of this position on the question of how society is possible is that each participating individual must be able to attach the same meaning to the same gesture. Human society, thus, rests on the sharing of meanings in the form of common understandings and expectations. See Blummer's discussion of "Society as Symbolic Interaction," op. cit., pp. 78-90.

social interaction, a necessary function in the emerging personality, a means of developing a social self, and a way of acquiring significant symbols so as to participate in society. As discussed previously, individuals hold certain positions that are accompanied by role expectations. A role in this sense is a cluster of meanings and values that guide an individual's behavior in a given social setting. Role playing is the performance of these role prescriptions.[49] These social prescriptions are the interpersonal aspect of role behavior. To this the individual adds his personal contribution derived from his unique makeup of physical and social history. This aspect of role behavior may be termed role-making.[50]

Role taking is the cognitive activity that refers to the process by which a person momentarily pretends "as if" he is another person, projects himself into the perceptual field of another, imaginatively puts himself in the other's place, and takes the other's attitude in order that he may gain insight into the probable behavior of others. That is, role taking is taking the other's point of view and imagining how he thinks.

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[49] W. Coutu, "Role Playing v. Role Taking: An Appeal for Clarification," A.S.R., (Vol. 16, 1950), pp. 180-187.

[50] R. Turner, "Role Taking: Process Versus Conformity," in A. Rose, Editor, Human Behavior and Social Processes, (Boston: Houghton Mifflin, 1962), pp. 20-41.

Vaihinger anticipated the cognitive processes involved here in his social philosophical writings. In his view, social learning is based on the capacity to treat an object or event "as if" it were something else.[51] This "as if" statement is a mythical fiction that holds thoughts together and is, therefore, essential to any conceptual process mediated by symbols. His contention is that in a social world where knowledge of the other is incomplete, the individual must proceed "as if" this were not the case. Sarbin indicates the role taking process has two distinguishable "as if" elements: (1) A hypothetical assumption, "Suppose I were John Doe?; and, (2) A consideration of the consequence of the assumption, "What would I do if I were John Doe?"[52]

A more recent and extensive treatment of social learning through role taking is provided by A. Bandura in his discussion of vicarious processes:

> In the formation of novel responses, new associative connections between existing behavioral elements are established through observation. Since the observer does not engage in overt performances during the acquisition stage, the new integrations involve representational (symbolic) processes elicited by the modeling stimuli. In addition,

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[51] H. Vaihinger, The Philosophy of "As If", (New York: Harcourt and Brace, 1924).

[52] T. Sarbin, "Role Theory," in G. Lindsey, Editor, Handbook of Social Psychology, (Cambridge: Addison Wesley, 1954), pp. 223-258.

> the observer learns the sequential connections between modeling responses in a continuous chain. . . . The characteristics of the social transmitter and other interpersonal variables can greatly affect the rate level and types of responses that can be acquired observationally.[53]

Role taking thus provides a basis for group life insofar as it enables the individual to learn the meanings necessary for cooperative behavior or, in Blummer's terms, joint action. Cooperation occurs when interacting individuals ascertain the intentions of others. Mead's major thesis is that man's unique development of mind, self, and society emerges from the capacity to take the role of the other combined with the biological necessity for human group life.

Piaget has considered the cognitive aspects of cooperation in his concern with the place of individual maturation in the development of thought ways. From his studies, it may be concluded that groupings or the achievement of certain equilibrium operations, like internal representation, are a prerequisite to cooperative behavior.[54] Groupings, as noted previously, refers to the coordination of operations and cooperation refers to the coordination of viewpoints. Cooperation requires the ability to

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[53] A. Bandura, "Vicarious Processes: No Trial Learning," in L. Berkowitz, Editor, Advances in Experimental Social Psychology, (New York: Academic Press, 1965), p. 48.

[54] J. Piaget, Judgment and Reasoning in the Child, p. 218.

manipulate internal representations and a capacity for objectivity not possible prior to the advent of concrete operations. In terms of the décalage concept, newly developed forms of thought are applied to increasingly complex and varied content of social experience.

Mead, like Piaget, does not see the capacity for cooperative behavior emerging full blown in the child. Rather, it is a developmental product. Accordingly, Mead outlined several stages in social development culminating in role taking activity.

The first phase, termed the Prepatory Stage by Meltzer, is one in which the child exhibits meaningless imitation.[55] The child copies others with no apparent understanding of what he is doing. Role taking activity is not yet manifest.

In the second phase of social development, the Play Stage, the child plays various roles. The concern in this phase is usually with significant others and involves non-reflexive role taking. In Mead's words:

> A child plays at being a mother, at being a teacher, at being a policeman. . . . But we do not have in this situation the taking of a definite role in the sense that a child deliberately takes the role of another. . . . He plays that he is, for instance, offering himself something and he buys it; he gives

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[55] Mead did not name this stage but alluded to its content in scattered fragments throughout his writings. Meltzer, op. cit., p. 10.

> a letter to himself, and takes it away; he addresses himself as a parent, as a teacher; he arrests himself as a policeman. . . . Such is the simplest form of being another to one's self. It involves a temporal situation. The child says something in one character and then his responding in another character is a stimulus to himself in the first character, and so the conversation goes. . . . In this early stage he passes from one role to the other as a whim takes him.[56]

As this stage comes to a close, the child begins to direct activity toward himself by reflexively taking the role of others. During this phase, the egocentrism of early childhood begins to decline. At first, the role taking involved is incipient in simple and unstable forms because no unitary standpoint from which to view himself or others has emerged. As the child's circle of acquaintances grows, language skills increase, and number of role relations becomes more complex, the role taking process becomes more sophisticated.

The final phase, the Game Stage, comes about when the child finds himself in situations that involve taking a number of roles simultaneously, organizing these roles into an integrated whole, and viewing himself from this standpoint. On the cognitive level this stage obviously requires the achievement of concrete operations and reversibility.

Mead uses the game to illustrate this stage:

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[56] Mead, op. cit., pp. 364-365.

> If we contrast play with an organized game, we note the essential difference that the child who plays in a game must be ready to take the attitude of everyone else involved in the game and these different roles must have a definite relationship to each other. . . . In a game where a number of individuals are involved the child taking one role must be ready to take the role of everyone else.[57]

In Mead's famous example of the baseball game, each player must visualize the intentions and expectations of the other players.[58] The individual player must take the roles of the group of other players as opposed to individual roles. This involves what Mead terms taking the role of the generalized other and represents an organized standpoint on which an individual can view himself and others. Through the taking of the role of the other, the child is freed from the largely egocentric peculiarities of immediate and concrete situations.

Social development may, thus, be seen as a balance between one's self actions and the actions of others toward the self through the process of role taking. Paralleling the increased capacity to handle complex cognitive organizations is the capacity to deal with increasingly intricate role relationships. Just as cognitive development was restrictively defined in terms of the achievement of concrete operations, social development has been narrowly pictured in terms of the emergence

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[57] Ibid., p. 151-152.

[58] Ibid., p. 153-154.

of role taking activity. The aspect of social development under investigation here involves the social psychological factors that enable the young child whose preliminary role behavior is restricted to mere role playing to come, in time, to have the capacity to take the role of others and generalize these multiple perspectives. Mead, like Piaget, outlined the structure of developmental change and did not emphasize the possible social psychological mechanisms involved in the transition from one stage to the next.

Prior to directly dealing with this area of investigation, a selective literature review relating to the development of role taking activity and similar concepts is in order.

Related Studies

This review will not replicate the adequate coverage given to the theory and methods surrounding role taking and related concepts by Bruner and Tagiuri[59], Taft[60], Bronfrenbrenner *et al.*[61], Cline[62], Frijda[63], Stotland[64],

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[59] J. Bruner and R. Tagiuri, "The Perception of People," in G. Lindsey, *op. cit.*, pp. 634-654.

[60] R. Taft, "The Ability to Judge People," *P.B.*, Vol. 52, 1955), pp. 1-23.

[61] U. Bronfrenbrenner *et al.*, "The Measurement of Skill in Social Perception," in D. McClelland, Editor, *Talent and Society*, (Princeton: Van Nostrand, 1958), pp. 29-41.

and Tagiuri.[65] The following studies have been selectively chosen, as were those pertaining to cognitive development, on the basis of the problem under consideration and the instruments employed in its investigation. In fact, this review is a preliminary presentation of literature restricted to studies related to the control variables of age, sex, and IQ, and their apparent association with the development of role taking and similar concepts. Following this section will be a clarification of the concept of role taking in light of conceptual and methodological problems surrounding its investigation. Subsequently, a detailed portrayal of the literature relevant to this investigation's focus on role taking activity and the reliability and validity of its measurement will be undertaken.

In one of the earliest studies in this area, Gates found that the recognition of different emotions becomes increasingly possible as age increases.[66] This finding was

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[62] V. Cline, "Interpersonal Perception," in B. Maher, Editor, Progress in Experimental Personality Research, (New York: Academic Press, 1964), pp. 221-284.

[63] N. Frijda, "Recognition of Emotion," in L. Berkowitz, Editor, Advances in Experimental Social Psychology, Vol. 4, (New York: Academic Press, 1967), pp. 167-223.

[64] E. Stotland, "Exploratory Investigations of Empathy," in L. Berkowitz, Ibid., pp. 271-314.

[65] R. Tagiuri, "Person Perception," in G. Lindsey, Editor, Handbook of Social Psychology, 2nd Edition, (Boston: Addison Wesley, 1969), pp. 395-451.

[66] G. Gates, "An Experimental Study of the Growth of Social Perception," J.E.P., (Vol. 14, 1923), pp. 449-462.

systematically replicated and confirmed by Kellogg and Eagleson[67], and Dimitrovsky and Blau.[68] Ausubel found a reliable relationship between socioempathetic ability and age.[69] Burns and Cavey report that the number of empathetic responses given by younger subjects is significantly lower than the number of responses given by older children.[70] Both Honkavaara[71] and Levy-Shoen[72] indicate that the incidence of social perceptions develops with age in accord with situationally determined hierarchies of cue utilization. Milgram and Goodglass report a developmental trend from second grade to the eighth grade in the ability to judge others.[73]

Yarrow and Campbell found that there were no differences in category usage in person perception related

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[67] W. Kellogg and B. Eagleson, "The Growth of Social Perception in Different Racial Groups," J.E.P., (Vol. 22, 1931), pp. 367-375.

[68] L. Dimitrovsky and H. Blau, "Sensitivity to Vocal Cues," in J. Davitz, Editor, The Communication of Emotional Meaning, (New York: McGraw Hill, 1964).

[69] D. Ausubel et al., "A Preliminary Study of Developmental Trends in Socioempathy," C.D., (Vol. 23, 1952), pp. 111-128.

[70] N. Burns and L. Cavey, "Age Differences in Empathy Among Children," C.J.P., (Vol. 2, 1957), pp. 227-230.

[71] S. Honkavaara, "The Psychology of Expression," B.J.P., Monograph No. 32, (1962), pp. 2-96.

[72] A. Levy-Schoen, The Image of Others in the Young Child, (Paris: University of France, 1964).

[73] N. Milgram and H. Goodglass, "Word Associations of Adult and Children," J.P., (Vol. 29, 1961), pp. 81-93.

to age. They do, however, report that there were significant variations in complexity and interconnectedness of response.[74] Likewise, Thorpe and Swartz found that older subjects generate more integrated responses than do younger subjects.[75] These findings are in accord with Siegel's report that older children are significantly more able to process information than younger children.[76]

Kohn and Fieldler indicate that age and sex differences appear to have an effect on the perception of others.[77] Likewise, Fieldler and Hoffman conclude after a cross-cultural study of Dutch and American children that age and sex factors are a determinant of interpersonal perception.[78]

Gollin has reported significant differences in social judgment according to age, sex, and social background.[79] Wolfe has found that age, intelligence, and

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[74] M. Yarrow and J. Campbell, "Person Perception in Children," M.P.Q., (Vol. 9, 1963), pp. 57-72.

[75] J. Thorpe and J. Swartz, "Level of Perceptual Development as Reflected in Responses to the Holtzman Inkblot Technique," J.P.T., (Vol. 29, 1965), pp. 380-386.

[76] L. Siegel, "The Development of the Ability to Process Information," J.E.C.P., (Vol. 6, 1968), pp. 368-383.

[77] A. Kohn and F. Fieldler, "Age and Sex Differences in the Perception of Persons," Sociometry, (Vol. 24, 1961), pp. 157-164.

[78] F. Fieldler and E. Hoffman, "Age, Sex, and Religious Background as Determinants of Interpersonal Perception Among Dutch Children: A Cross-Cultural Validation," A.P., (Vol. 20, 1962), pp. 185-195.

[79] E. Gollin, "Organizational Characteristics of Social Judgment: A Developmental Investigation," J.P., (Vol. 26, 1958), pp. 139-154.

conceptual level are positively related to role taking activity and impression formation ability.[80]

This abbreviated review supports the conclusions of Piaget and Mead that there is a developmental progression involved in the capacity of cognitively organizing sensory input and the activity of handling the multiple perspectives of others derived from role taking. In addition, these findings indicate the relationship of age, sex, and IQ in the development of these capacities.

Issues in the Study of Role Taking

Following Cottrell's plea for more systematic research on such empathetic responses as role taking, there has been a plethora of research and theorizing in this area.[81] Much of it has merely accentuated the complex and intricate difficulties that surround such study.

The most serious problem seems to be the lack of scrutiny given to the nature and origin of empathetic responses.[82] As a consequence, there has been a tendency to prematurely deal with them in terms of impure

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[80] R. Wolfe, "The Role of Conceptual Systems in Cognitive Functioning at Varying Levels of Age and Intelligence," J.P., (Vol. 31, 1963), pp. 108-123.

[81] L. Cottrell and R. Dymond, "The Empathetic Responses," Psychiatry, (Vol. 12, 1949), pp. 355-359.

[82] See R. Volpe, "Conceptual and Methodological Problems in the Study of Empathy." An unpublished paper, Department of Sociology, University of Alberta, Edmonton, Alberta, 1967.

conceptualizations and shallow operationalizations. The focus of these studies has largely been on the ability to know others and the methodological approach has centered upon the accuracy of judgments.

In both the 1954 and 1969 Handbook of Social Psychology reviews of literature in this area, the authors have decried the emphasis on the accuracy component of empathy phenomena as premature and concluded that it has been at the expense of careful consideration of the fundamental processes involved.[83]

An example of the confusion and debate in this area is the critique of Dymond's series of empathy studies by Hastorf and Bender.[84] They contend that what appears to be accurate empathetic judgments of others may merely be projection, and suggest a means of refining empathetic ability scores by subtracting a projection component. In a critique of Hastorf and Bender's critique, Gage and Cronbach draw attention to the weak fit between conceptual and operational definitions and maintain that the suggested refinement of Dymond's methods would cause those individuals that were both similar and accurate predictors to be

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[83] Bruner and Tagiuri, op. cit., and Tagiuri, op. cit.

[84] A. Hastorf and I. Bender, "A Caution Reflecting the Measurement of Empathetic Ability," J.A.S.P., (Vol. 47, 1952), pp. 574-576.

overlooked.[85] They add, moreover, that their research indicates that perceivers tend to predict for others what they say is true for themselves. Gage and Cronbach conclude that the basic variable under consideration has been poorly conceptualized as a judgmental ability.[86]

On this topic Bruner and Tagiuri cite a hopeful trend:

> Research appears to be in the direction of investigating what kinds of organized impressions are formed under varying conditions of cue, role set, and prior information. There appears to be a de-emphasis of interest in the nature of judgmental accuracy and a renewed emphasis on the judgmental processes.[87]

The conceptualization and measurement of role taking employed in this study will maintain the apparently more promising focus of investigating the cognitive and social

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[85] N. Gage and L. Cronbach, "Conceptual and Methodological Problems in the Study of Interpersonal Perception," P.R., (Vol. 67, 1955), pp. 411-422.

[86] Holt has shown in his excellent review of the literature pertaining to the related area of controversy regarding clinical versus actuarial psychological assessment that it appears that in terms of prediction, humans must defer to the proven abilities of actuarial tables. (R. Holt, "Yet Another Look at Clinical and Statistical Prediction: Or Is Clinical Psychology Worthwhile," A.P., (Vol. 25, 1970), pp. 337-349. Nettler has, moreover, concluded that empathetic responses may actually impede accurate prediction. (G. Nettler, Explanations, [New York: McGraw Hill, 1970], p. 75). Fortunately for social sciences, prediction is not the only criterion on which its endeavors can be judged.

[87] Bruner and Tagiuri, *op. cit.*, p. 634.

processes involved in developing the capacity to know the other. As a consequence of this orientation, it is necessary to further qualify the notion of role taking employed herein.

In terms of the theoretical rationale set forth in the previous section, role taking can be placed on a continuum of role behavior. At one end is the actual playing of a role (role enactment) and on the other is the cognitive activity of seeking out the role attributes of others (role taking). A distinction is made here between accuracy of enactment and judgment and the mere activity of playing of discerning the role attributes of others. Through these distinctions, it is hoped that many of the problems that have bogged down research in this area can be eliminated by focusing on the more fundamental processes of role behavior involved in role taking activity.

Role taking activity is, thus, conceptualized as "the process of cognizing the role attributes of others" and indicated in the following actual operations: (1) Inferring the thoughts and feelings of others; (2) Adapting to changes in others; (3) Anticipating the behavior of others; and, (4) Portraying different attributes of others.[88]

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[88] J. Flavell, The Development of Role Taking and Communication Skills in Children, (New York: J. Wiley and Sons, 1968).

A number of studies are relevant in their further documentation of the apparent trend in cognitive and social development, illustration of the particular theoretical and methodological position taken by this investigation, and provision of reliability and validity data concerning the Feffer Role Taking Task to be employed.

One of the first studies characterized by this orientation was by Dymond et al., in which twenty-four second grade, and sixteen sixth grade children were given a series of pictures showing children with and without adults in a variety of situations. The experimenter read a simple story about each picture, and then asked a series of questions designed to elicit the thoughts and feelings of the characters in the pictures. Subjects were scored as to the amount of prodding required to elicit inferences about each character. As predicted, the older children needed less prodding than the younger. These results were interpreted as indicating that older children were more aware of the thoughts and feelings of others.[89]

Gollin created a role taking activity task which tests the subject's capacity to maintain consistency in face of change. Subjects differing in age, sex, intelligence, and paternal occupation class were asked to write

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[89] R. Dymond et al., "Measurable Changes in Empathy With Age," J.C.P., (Vol. , 1952), pp. 202-206. This study was not one of Dymond's series of studies dealing with the accuracy of empathetic responses.

their judgments of a boy whose behavior they observed in a five scene silent movie. Two scenes in the movie were designed to connote "good" behavior, and two were designed to connote "bad" behavior. Individual differences in the organizational character of judgments were obtained. Some of the subjects utilized inferences in an attempt to account for the diversity of behavior, others used inferences only in accounting for particular behavioral themes, while still others did not use inference but confined themselves to describing the action they had perceived. The subjects were then scored as to inferences going beyond mere behavioral description and the conceptualization of the inconsistencies in the social action portrayed. The use of inference was 20, 60, and 90 per cent for the respective ages of ten, thirteen, and sixteen. Conceptualization was found for the same age range as follows: 2, 15, and 50 per cent. Gollin concluded that the differences in response were apparently associated with age, sex, intelligence, and SES.[90]

Flavell and associates have conducted a series of studies on the development of role taking activity with particular attention to its instrumental value in communication. The purpose of these exploratory studies was to

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[90] E. Gollin, "Organizational Characteristics of Social Judgment: A Developmental Investigation," J.P., (Vol. 26, 1958), pp. 139-154.

map out in a descriptive-normative (non causal-analytic) way the developmental aspects of role taking activity. Their concern was not how role taking activity is attained or impeded (as in the case of this investigation), but rather, what it is and when it is attained.

These studies included groups of children between grade two and grade eleven. Two kinds of tasks were employed. Communication tasks tapped the child's capacity to assess the role attributes of others for the purpose of composing an effective message. Role taking tasks involved the same assessment either in isolation for its own sake, or in the service of some non-communicative goal, such as playing a competitive game or actually enacting the other's role.

The findings of these studies consistently showed a developmental trend in terms of the existence, relevance, ability, performance, and application of role taking activity.[91]

Another series of studies by Feffer and associates has provided the role taking activity task (R.T.T.) used in the present investigation. The background, rationale, and outline of this instrument will be provided in a later section. For now, the results of studies employing the R.T.T. will be reviewed and efforts to establish its

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[91] Flavell, The Development of Role Taking and Communication Skills in Children, op. cit.

reliability and validity will be discussed. The R.T.T. was chosen for use in this investigation on the basis of these studies and its affinity to the theoretical rationale outlined previously.

In an early methodological study, Feffer employed two independent assessments of cognitive development. One was the R.T.T., and the other was derived from the developmental indices of the Rorschach. The two assessments were found to be significantly correlated. The investigator concluded that this data supports the use of the R.T.T. as a measure of cognitive and social development.[92]

Feffer and Gourevitch administered a series of Piaget's cognitive achievement tasks and the R.T.T. to a group of children of varying ages. The two independent tasks were found to be positively related to age and to one another.[93] Swinson replicated and confirmed these findings.[94]

In an attempt to determine construct validity, Wolfe administered Feffer's R.T.T. and Gollin and Rosenberg's Situation Interpretation Experiment (S.I.E.). The

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[92] M. Feffer, "The Cognitive Implications of Role Taking Behavior," J.P., (Vol. 27, 1959), pp. 152-168.

[93] M. Feffer and V. Gourevitch, "Cognitive Aspects of Role Taking in Children," J.P., (Vol. 28, 1960), pp. 383-399.

[94] M. Swinson, "The Development of Cognitive Skills and Role Taking." (Unpublished Ph. D. Dissertation, Boston University, Boston, Massachusetts, 1965).

latter task is a measure of the disposition toward conceptual systems or variations in abstractness. The R.T.T. and the S.I.E. were found, with sex and age held constant, to be significantly related. The investigator concluded that the complexity of conceptual systems and role taking activity increase with age.[95]

Feffer and Sucholiff evaluated eighteen subject pairs, matched according to verbal intelligence and shared word associations in terms of their role taking activity using the R.T.T. and effectiveness in social interaction as measured by the Password Test. The higher R.T.T. scoring dyads were found to communicate more quickly and with fewer clues than did lower R.T.T. scoring dyads.[96]

In an attempt to determine the relation between Piaget's concept of decentering and initial R.T.T. story content, Feffer and Jahelka found that the more a respondent portrays reciprocal social interaction in his initial story, the better he is able to coordinate the viewpoints of stimulus characters. A second study evaluated an alternative interpretation to this relationship. Subjects were required not only to take roles based

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[95] R. Wolfe, "The Role of Conceptual Systems in Cognitive Functioning at Varying Levels of Age and Intelligence," J.P., (Vol. 31, 1963), pp. 108-132.

[96] M. Feffer and L. Sucholiff, "Decentering Implications of Social Interaction," J.P. & S.P., (Vol. 4, 1966), pp. 415-422.

upon their own initial stories, but also to take roles based upon initial stories produced by others. These results support the position that the empirical association between initial story performance and role taking activity are a function of a common dimension of decentering activity rather than a function of the stimulus properties of the initial story.[97]

Korstvedt tested the notion that there is a parallel relationship between role enactment and the cognitive processes which underlie role taking activity. Two groups of boys, one emotionally disturbed, and the other normal, were matched according to age, IQ, and SES. Role enactment was clinically assessed and the R.T.T. was administered. The findings supported the hypothesized relationship between role enactment and role taking activity.[98]

The studies employing Feffer's R.T.T. outlined above suggest an increase in role taking activity paralleling cognitive development across early and middle childhood in terms of measured capacity to take on different roles in a given depicted social situation and to keep characterizations in the series consistent with all others. Moreover,

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[97] M. Feffer and M. Jahelka, "Implications of the Decentering Concept for the Structuring of Projective Content," J.C. & C.P., (Vol. 32, 1968), pp. 434-441.

[98] A. Korstvedt, Role Taking Behavior in Normal and Disturbed Children. An unpublished Ph. D. Dissertation, Clark University, Worchester, Mass., 1962.

these studies provide favorable evidence as to the reliability and validity of the R.T.T.

In sum, role taking activity and the achievement of concrete operations may be seen as parallel developmental consequences. That is, the capacity to deal with the multiple points of view involved in role taking or cognizing the role attributes of others requires the cognitive capacity to decenter or shift perspective.

CHAPTER III

TRANSFORMATION AND RESTRICTION

Dialectics of Cognitive and Social Development

The purpose of this section is to provide analytic content to the largely formal descriptions of cognitive and social development outlined by Piaget and Mead. The following will attempt to determine what might be the social psychological mechanisms by which the transformation from egocentrism to sociocentrism takes place. The contention advanced here is that the key to the child's emerging sociality lies in the dialectic of typical social experience and involvement. Social, maturational, and physical factors interact to produce growth and development. In this view, the human organism is more than a passive receptor of environmental inputs. Rather, it is an active interactant shaping the forces that shape him. From an early age, such factors as role expectations and obligations shape the child's values and needs. Social life affects cognitive structures through language, rules imposed upon thought, and the content of interaction. The child, in turn, reacts and interprets these experiences in terms of his biological, personal, and interpersonal history. Society as a totality of interaction between individuals constitutes a whole, insofar as the mere fact of relationship provides it with the properties of a system. The

content of an individual's interaction within the social system varies in accordance with his level of development, which is made equally variable by processes manifest in social relations.

Cognitive development may be seen to occur as a consequence of the continuous operation of the functional invariants of organization and adaptation in a succession of discontinuous cognitive structures. Insofar as cognitive structures are subject to the actions performed on reality, this process is the key to cognitive development. A characteristic of the relationship between thought and action is that actions become internalized and covert in the course of development. Moreover, the adaptational processes of accommodation and assimilation show increasing differentiation and complementation as development proceeds. These elements are part of the progressive equilibrium of cognitive actions. The sequence of cognitive structures becomes a sequence of equilibrium state moments within an ongoing continuous process of equilibration. In this "dynamic equilibrium", each structure integrates its predecessor to form a new and higher form of equilibrium.

On the social side of this process, the child may be seen to evolve from the pre-operational phase of egocentrism to the concrete operational stage of sociocentrism largely through the liberating forces of social interaction. Numerous demonstrations exist to show how

readily the physical world can be distorted to fit preexisting schemas. One reality of social experience that cannot be so easily distorted is that aspect characterized by conflict and argumentation. Illustrative of this may be the fact that the very young child does not need to communicate clearly. If he babbles and speaks unclearly, adults are usually patient, sometimes delighted at such "cute" outpourings, and they attempt to understand him. In contrast, other children, not being so solicitous, may force the child to adopt more effective means of communication. In order to better express, justify, and defend himself, the child must learn to take into account other points of view. Not to do so might mean being misunderstood, not getting one's way, and, in some cases, losing points of contention. In short, the child, in the course of social experience and involvement, is forced to re-examine his percepts and concepts in light of those held by others, and in doing so reduce his egocentrism.

The dialectic of social life, thus, involves an ongoing interplay between thought and action. Cognitive and social development are determined by the interaction of three factors: biologically programmed maturation, experience of the physical world, and experience of the social world. Equilibration may be seen as an overriding additional factor that determines the mode of interaction of the first three. The processes involved are essentially

dialectical in nature. At each level of development there are two poles of activity: accommodation or changes in structure due to intrusion, and assimilation or changes in the intruding stimuli due to pre-existing structures. Employing a simplified form of the Hegelian notion of dialectic, these respective activites may be viewed as a thesis and antithesis that effect an eventual synthesis or equilibrium.

The observations of Harry Stack Sullivan regarding cognitive and social development in relation to maturation and experience may illuminate the conceptual orientation discussed here.[99] Following the development of language and the syntaxic mode of cognitive experience, Sullivan outlined several stages of social development. The first, the Juvenile Era, proceeds from the development of speech to the need for playmates (from age five to age ten). The Juvenile expands his sphere of interpersonal activity

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[99] According to Sullivan, cognitive processes develop in three stages that correspond to the early phases of social development. The first or Prototaxic Stage covers a period in which the field is unorganized and chaotic. This stage occurs from birth through infancy and encompasses the period Piaget designates as the Sensori-motor Stage. The second or Parataxic Stage covers a period in which the field is conferred with causal relationship whether or not they exist. This period parallels Piaget's demarcation of the last part of the Sensori-motor Stage known as the pre-operational period. The final or Syntaxic Stage is based upon a developed language system that allows for a meaningful ordering of the world. This stage corresponds with the achievement of "internal representations" in the last phase of Piaget's preoperational period. Sullivan, *op. cit.*, pp. 110-111.

outside the family by seeking playmates like himself. This era calls for the acquisition of experience of social subordination to authority figures outside of the family. Competition, conflict, and instrumental cooperation growing out of group membership characterize the egocentric endeavors of the Juvenile.[100]

The next or Preadolescent Era extends from age eleven to age thirteen. It is marked by the capacity and need for a "chum" or best friend who makes the experience of a social world growing in complexity and confusion a bit more bearable. Ideally, this "chum" is someone experiencing the same changing social world, and together these chums collaborate, or non-instrumentally cooperate, in solving the problems and tasks of daily living. This sharing of experience and exchange of meanings allows for the establishment of consensual validation in a social world increasing in contradictions.[101] In short, the interpersonal conflict arising from an increasingly complex social world necessitates the close sharing of the perspectives of another, and involves a high degree of role taking activity.[102] Sullivan's observations regarding

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[100] _Ibid._, p. 217.

[101] _Ibid._, p. 243.

[102] Cognitive consistency theory has applicability here. According to Heider, the individual experiencing cognitive disequilibrium or imbalance seeks to return his psychological see-saw to its proper balance. The preadolescent, according to this perspective, attempts to reduce the discrepancy between his internalized meanings and the incongruities confronting him. (F. Heider, _The_

social development during these phases have been confirmed in a cross-sectional study by Volpe[103] and a longitudinal study by Maus.[104]

Lewin's field theory and related research can provide insight into the differing social psychological worlds of the developmental stages under consideration. He classified levels of experience under five headings: (1) Varieties of behavior; (2) Organization of behavior; (3) Extension of areas of activity; (4) Interdependence of behavior; and, (5) Degree of realism. According to Lewin, complexity and differentiation increase at different age levels.[105] Research by Barker, Dembo, and Lewin support the observation that as age increases to a point in adulthood, an individual's life space becomes more complicated and fluid.[106] As the field grows in complexity

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Psychology of Interpersonal Relations, [New York: J. Wiley and Sons, 1958]). In terms of Festinger's theory, the preadolescent can be said to be experiencing cognitive dissonance and will seek in some way to increase the consonant base of his knowledge by acquiring correspondent and adjusted cognitions that are consonant. (L. Festinger, A Theory of Cognitive Dissonance, [Stanford: Stanford University, 1957]).

[103] R. Volpe,"Chumship in Preadolescence." (Unpublished M.A. Thesis, Kent State University, Kent, Ohio, 1967).

[104] H. Maus, "Preadolescent Peer Relations and Adult Intimacy," Psychiatry, (May, 1968), pp. 161-172.

[105] K. Lewin, Field Theory in Social Science, (New York: Harper and Row, 1951), p. 142.

[106] R. Parker et al., "Frustration and Aggression," in L. Southwell and S. Merbaum, Editors, Personality - Readings in Theory and Research, (Belmont, California: Wadsworth, 1966), p. 169.

and fluidity, there is an increased likelihood that experiences will become more at odds with the validations acquired previously. New role expectations may be inadequately explained by previous learning. The cognitive disequilibrium would presumably call forth adaptation processes and changes in cognitive structures.

Following systematic observation and questioning of children regarding their judgments of social relationships, Piaget concluded that "the development of mutual respect towards other leads to an autonomous regard for the rules as products of group agreement and as instruments of cooperative purposes."[107] Mutual respect is apparently associated with the cognitive capacity to differentiate one's own perspective from that of others. Piaget believes that reciprocal justice develops out of peer interaction and out of logical capacity for non-egocentric, reciprocal, or reversible thought. The series of systematic studies in the Piaget tradition by Kohlberg indicates that there are definite cross cultural and regular age trends in moral judgment founded on a formal cognitive base.[108] The following quote by Kohlberg well summarizes this section and introduces the next:

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[107] J. Piaget, The Moral Judgment of the Child, p. 196.

[108] Kohlberg, op. cit., p. 375.

> The environment is seen as a social world which includes rules and which the child understands through conceptually organized role taking. The mere process of role taking the attitudes of others in organized social interaction is believed to transform concepts of rules from external things to internal principles. Variations in social environment are viewed as stimulating or retarding role taking and, hence, as stimulating or retarding sequential development, rather than as variations in effectiveness of stamping in rules through reinforcement or identification.[109]

The Social Psychological Consequences of Restricted Social Involvement and Experience

Thus far, it has been argued that the child's achievements in cognitive and social development are in part a function of his social experience and involvement. Of particular interest here has been the period between six and twelve years of age which is marked by the decline of egocentrism and the emergence of role taking activity. These achievements are monumental insofar as the child comes to recognize his interrelation with others. This developmental epoch assumes that "all has gone well" and the child's social experiences have been normal or typical. That is, as Sullivan terms it, the assumption is made that there have been no "restrictions in the child's freedom to live."[110]

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[109] L. Kohlberg, "Moral Development and Identification," in H. Stevenson, Editor, Child Psychology, The Sixty-second Yearbook of the National Society for the Study of Education, (Chicago: University of Chicago, 1963), pp. 313-314.

[110] Sullivan, op. cit., p. 305.

The theoretical rationale presented here suggests that a child cannot shift to another's point of view or take the role of the other if he lacks the necessary cognitive capacity and role expectations. This means that a child must be able to cognitively organize the action of persons around positions for which he has developed and learned the prescribed sets of rules, rights, and duties. A person cannot take a role for which he has no expectations. Interpersonal acts are, thus, organized within a cognitive framework of role expectations that are acquired in the course of social experience and involvement. While imitation and identification are necessary for acquiring these expectations, certain maturational factors, as have been previously outlined, influence what is copied.

The crucial question at this point asks how might restrictions, used in the sense of lack of opportunity, affect cognitive (concrete operations) and social (role taking activity) development?

Several studies have found that restrictions arising from social class, ethnic group, urban-rural placement, childrearing, and role taking model differences affect cognitive and social development. Hess and Shipman report that culturally deprived blacks could be differentiated from non-culturally deprived whites in terms of

cognitive modes and linguistic codes.[111] In two studies by Estivan, social perception differences were found according to sex, race, social status, age, and urban-rural residence.[112] Murphy's classic study indicates that social distance affects the manifestation of sympathy. Finally, Neale reports that institutionalized children are more egocentric than non-institutionalized children.[113]

On the conceptual level, Sarbin[114] and Gough[115] have contended that sociopathy is a result of role taking in activity. Cameron, following Sullivan's lead, attributes schizophrenic cognitive and linguistic disorders to role taking deficiencies. His comments are pertinent here:

> . . . the member of any organized society must develop more than a single role or behavior if he is to reciprocate and cooperate effectively with his fellows. To the behavior pathologist, this implies further that the person whose repertory includes a variety of well practiced,

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[111] R. Hess and V. Shipman, "Early Experience and the Socialization of Cognitive Modes in Children," C.D., (Vol. 36, 1966), pp. 15-22.

[112] F. Estivan, "Studies in Social Perception: Methodology," J.G.P., (Vol. 92, 1958), pp. 215-246.

[113] J. Neale, "Egocentrism in Institutionalized and Non-Institutionalized Children," C.D., (Vol. 37, 1966), pp. 97-101.

[114] T. Sarbin, "The Concept of Role Taking," Sociometry, (Vol. 6, 1943), pp. 273-285.

[115] H. Gough, "A Sociological Theory of Psychopathy," A.J.S., (Vol. 53, 1948), pp. 359-366.

> realistic social roles is better equipped to meet new and critical situations than the person whose repertory is meager, relatively unpracticed, and socially unrealistic. The skilled role taker, like the skilled motorist, has a better chance than the unskilled in withstanding sudden, unforeseen stress and the effects of unsettling strain.[116]

Beqiraj, starting from the vantage point provided by the Sociology of Knowledge, is in the process of investigating his notion that the homogeneous normative patterns found in peasant societies result in a cognitive mode that is predominantly egocentric and preoperational.[117] Early field reports indicate support for his position.[118]

These studies suggest that role taking activity requires social experience and involvement. Warshay's notion of "breadth of perspective" allows the consequences of this experience to be interpreted in symbolic interactionist terms. The concept refers to the range of alternative solutions one is able to bring to mind when faced with a problem. Perspective is a capacity of the actor which determines the kind of meaningful responses possible

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[116] N. Cameron, "Experimental Analysis of Schizophrenic Thinking," in J. Kasanin, Editor, Language and Thought in Schizophrenia, (Berkely, University of California, 1944), p. 465.

[117] M. Beqiraj. "Piaget's Epistemology Viewed From Perspectives of the Sociology of Knowledge," (Unpublished paper, Department of Sociology, University of Alberta, Edmonton, Alberta, 1968).

[118] Personal communication, M. Beqiraj. It should be noted that while Beqiraj's notions are akin to the Piagetian perspective, his later formulations, however, are in terms of his own conceptual scheme.

in a situation. Breadth of perspective is, thus, the scope of meanings and ideas that make it up. Perspective is learned through symbolic interaction and involves the acquisition of motives, attitudes, values, and role expectations. Warshay has found that breadth of perspective is significantly related to social experience and involvement.[119]

Restricted Social Experience and Involvement: Orthopedic Disability

The focus of this section will be on the possible social psychological consequences of orthopedic disability. More specifically, the aim here is to determine possible consequences of orthopedic disability on social experience and involvement and consequently on the cognitive (concrete operations) and social (role taking activity) development of the child.

This emphasis provides an area of study that is of both pure and applied import. By studying the accentuated and dramatized aspects of presumably impaired social living, it is hoped that the processes involved in normal development and interpersonal activities can be better understood. On the practical side, knowledge of the cognitive and social development of the disabled child may prove useful in aiding, rehabilitation by providing insight into his

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[119] L. Warshay, "Breadth of Perspective," in Rose, op. cit., pp. 148-179.

capacities and areas in need of attention in relation to the non-disabled child.

The research literature in this area reveals an abundance of psychologically oriented studies, usually psychoanalytic, concerned with intra-psychic functions. In contrast, there is a relative paucity of research dealing with the social psychological aspects of disability. Moreover, there is an almost total lack of investigation of disability and the important developmental epoch under consideration here. As Richardson concludes:

> Least systematic attention has been paid to the effect of handicapping on a person's social development and the learning of human relations skills.[120]

What evidence there is does indicate, however, that disability has a restricting effect on social experience and involvement. These studies focused largely on the restrictive nature of disability and not on the involved social psychological consequences. This last aspect will be dealt with in detail in a later section.

In a study of cerebral palsied children and their families, Dembo reports that the cerebral palsied child was given less opportunity for experiencing the environment, spontaneous behavior, and social experience.[121]

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[120] S. Richardson, "Some Social Psychological Consequences of Handicapping," Pediatrics, (Vol. 32, 1963), p. 291.

[121] T. Dembo, "Clark University Project on Motor Activity of Children with Cerebral Palsy," in H. Lofquist, Editor, Psychological Research and Rehabilitation, (Washington, D.C.: American Psychological Association, 1960), p. 33.

Shere studied thirty twins, one in each pair having cerebral palsy and the other without. She found that the C.P. twin was given less responsibility, tended to be more overprotected, was given little or no active part in forming family policies, and tended to be arbitrarily directed in activities.[122] Barker and Wright observed children with and without handicaps and report that handicapped children were greatly restricted in their variety of behavior in terms of both the physical and social environment.[123] Finally, Hastorf and associates indicate that handicapped children are restricted in their physical activity and social involvement.[124]

Role Expectations and Disability

The cognitive and role taking theory presented previously suggests a relation between thought and action. That is, the occupancy of a social position entails the adoption of its component role expectations that are cognitive, motoric, and expressive. Role learning occurs both prior to and during the occupancy of a social position.

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[122] M. Shere, "The Socio-emotional Development of the Twin Who Has Cerebral Palsy," Cerebral Palsy Review, (Vol. 17, 1957), p. 16.

[123] R. Barker and H. Wright, Midwest and Its Children: The Psychological Ecology of a Small Town, (Evanston: Row, Peterson, 1955).

[124] A. Hastorf et al., "The Problem of Relevance in the Study of Person Perception," in R. Tagiuri and L. Petrullo, Editors, Person Perception and Interpersonal Behavior, (California: Stanford University, 1958), pp.54-62.

These positions determine the opportunity and character of imitation and identification that contributes to anticipatory socialization. Moreover, as has been argued here, restrictions in typical social experience and involvement preclude the learning of typical role expectations and impede normal cognitive and social development. Of particular interest in this investigation is the crucial period between six and twelve years of age in which the normal child achieves concrete operations and manifests role taking activity. The mechanisms that are purported to activate these capacities arise in the free give and take of cooperation, competition, conflict, and collaboration that occurs in a normal child's play activities and peer groupings.

The subsequent literature review will consider the social nature of orthopedic disability and its possible social psychological consequence in restricting the social experience and involvement necessary for normal cognitive and social development. In this endeavor, it will be necessary to indicate the social meaning of disability in terms of the social position and accompanying role expectations of the disabled.

Richardson suggests that handicapping be defined as "an undesirable deviation from normality".[125] Implicit in

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[125] Richardson, op. cit., p. 292.

this definition is more than the obvious reference to physical deviation. The disabled person may also be considered deviant in the sociological sense. The following treatment of disability and deviance by Parsons can anchor this discussion:

> . . . suffering, helplessness, disablement, and the risk of death or sometimes its certainty constitute fundamental disturbances in the expectations by which men live. They cannot, in general, be accepted without the accompaniment of strain and hence without adjustment. . . . Deviance is, therefore, defined by its tendency to result in either changes in the state of the interactive system, or in reequilibration by counteracting forces, the latter being the mechanics of social control.[126]

Friedson, in his masterful discussion of physical disability, defined deviance as "conduct which violates sufficiently valued norms that, if it is persistent, is assigned a special negative deviant role, and is generally thought to require the attention of social control agencies."[127] Elsewhere, he adds that deviance is marked by "the assignment of a role to which a vocabulary of labels or epithets is attached and with the control of which special organizations are professionally involved."[128]

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[126] T. Parsons, The Social System, (New York: Free Press, 1950), p. 288.

[127] E. Friedson, "Disability as Social Deviance," in M. Sussman, Editor, Sociology and Rehabilitation, (Washington, D.C.: American Sociological Association, 1965), p. 73.

[128] E. Friedson, "The Concept of Deviance and Changing Concepts of Rehabilitation," in Sociological Theory, Research, and Rehabilitation, (Washington, D.C.: American Sociological Association, 1965), p. 5.

The numerous labels and derogations attached to the disabled and the abundance of special organizations and agencies for the handicapped attest to the relevance of Friedson's conceptualization.

The notion of disability as a form of social deviance is useful here insofar as it allows the placement of the disabled in a position that has presumably different role expectations. Further, it enables the assertion that the disabled person's role expectations and consequently (behavior) social experience, and involvement will differ from those of the non-disabled. Insofar as deviance is socially determined, it can be expected that the behavior of deviants will, in part, be socially determined and possibly independent of contextual and idiosyncratic factors. Moreover, since the role expectations of the deviant position are different, it seems reasonable to assume that the consequences of their behavior, vis-a-vis the social structure, will presumably be different.

Friedson has provided additional qualifications of the disabled person's deviant role that will be useful in this discussion. He has classified forms of deviance according to the following attributes. First is the element of responsibility. In Friedson's words:

> It makes a great and real difference when the cause of the deviant behavior is seen to lie in the deliberate choice, rather than in accident, inheritance, infection, or witchcraft. When the individual is believed to be responsible for his deviance, some form of punishment is

> likely to be applied; when he is believed not to be responsible, permissiveness is an important element in his treatment.[129]

The second element is termed "curability" and is divided into three categories: curable, improvable but not curable, and incurable. As with responsibility, there are implications for the societal management of each specified role.

> . . . since the management of all forms of deviance requires some form of segretation, the question here is the quality of segregation; in curable cases, it is likely to be temporary, and not too far removed from community life; in incurable cases, it is likely to be permanent to the point of execution, and removal to the point of banishment.[130]

Orthopedic disability can be located in the group of deviant roles where the incumbent is not held responsible and is, therefore, managed with permissiveness rather than punishment. Although Friedson does not deal with the management of improvables, this category is applicable to most categories of orthopedic disability. Management would most likely fall between the polarities outlined -- permanent but not toal disability, between integration and segregation.

These qualifications allow the disabled as deviant to be distinguished from other deviants such as criminals, delinquents, addicts, and perverts. From this discussion, it follows that the role expectations surrounding the

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[129] Ibid., p. 8.

[130] Ibid.

disabled person's position should be distinguishable.

Considerable evidence exists as to a cultural uniformity in reaction to orthopedic disability. Richardson and associates have found a consistent negative preference for disabled children by non-disabled children.[131] Systematic replications have been made in California, Montana, New York, with Jewish and Italian children in New York, and cross culturally in Britain, Germany, Israel, and Mexico.[132] It would, however, be fallacious, as Farina points out, to assume that all stigmata associated with disability have the same interpersonal consequences.[133] For this reason, the deviant social position of the disabled will be considered in terms of specific role expectations on the more abstract societal level. A selective review of the literature in this area will provide an outline of the specific role expectations involved.

Shere, in a study cited previously, reports that the disabled child is treated "as if" sick.[134] That is, the handicapped child is given less responsibility and dealt with permissively.

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[131] S. Richardson et al., "Cultural Uniformity in Reaction to Physical Disabilities," A.S.R., (Vol. 26, 1961), pp. 241-247.

[132] S. Richardson, "The Effect of Physical Disability on the Socialization of a Child," in Goslin, op. cit., p.1055.

[133] A. Farina et al., "Role of Physical Abnormalities in Interpersonal Perception and Behavior," J.A.P., (Vol. 73, 1968), pp. 590-592.

[134] Shere, op. cit., p. 16.

Shere's study and the notion of disability as a form of acceptable legitimate deviance suggests that with certain qualifications, Parsons' concept of "sick role" has applicability in the present investigation. Parsons outlines four aspects of the institutionalized expectation system relative to the sick role. First is the exemption from normal social role responsibility; second is the institutionalized expectation that the sick person cannot be expected to get well on his own as a personal act of will or decision; third is the definition of the state of being ill as itself undesirable with its obligation to get well; and finally, the fourth element is the obligation to seek technically competent help and cooperate fully in the process of trying to get well.[135] According to this institutionalized definition, the sick person is helpless and, therefore, dependent on others because, by the same definition, he is not competent to help himself. Moreover, in Western Culture, there is a special definition of the kind of help needed, namely, professional, technically competent help. The nature of this help imposes yet another disability on the already disabled. That is, he is not only not in a position to do what needs to be done, he does not know what needs to be done or how to do it.

Insofar as the concept of "sick role" implies volitional adoption on the part of its incumbent, it has

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[135] Parsons, op. cit., pp. 436-443.

limited applicability to the role of the orthopedically disabled. In Parsons' words, the adoption of the sick role is "asking to be taken care of . . . [and] uses disability as the basis of legitimation. . . .[136]

Although the concept of "sick role" is useful in providing insight into the role expectations of the disabled, its implied voluntarism is contrary to observations of the disabled person's role behavior. As Friedson points out, "most impairments are not motivated; they are contingencies of inheritance, accidents of infections and trauma."[137] Likewise, what Goffman describes as "covering"[138] and Davis as "normalization"[139] are attempts to disavow the deviance and negative identity associated with disability. These writers have astutely observed that the management of disability by these means often further disrupts interaction and creates deviancy in itself. Davis indicates that the disabled person's social experience and involvement is restricted by what he terms "fictional acceptance".[140] Implied here is a false state

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[136] Ibid., p. 289.

[137] Friedson, "The Concept of Deviance and Changing Concepts of Rehabilitation," op. cit., p. 5.

[138] E. Goffman, Stigma, (Englewood Cliffs, New Jersey: Prentice Hall, 1963), p. 102.

[139] F. Davis, "Deviance Disavowal: The Management of Strained Interaction by the Visibly Handicapped," S.P., (Vol. 9, 1961), pp. 120-132.

[140] Ibid.

regarding presentation and feedback of social information that requires "breaking through" in order to facilitate normalized role taking. In this context, it is obvious that the disabled person does not willingly assume the "sick role" but, rather, resists society's verdict.

Parsons' conceptualization does, however, help to illuminate the by no means clearly ascribed role expectations of the disabled. In Parsons' words:

> There seem to be at least two other features of the sick role. First there is the element of dependency. . . . Illness is predominantly a withdrawal into a dependent relation.[141]

The element of dependency along with related dimensions, appears throughout the literature regarding disability. Myerson's comments on the social situation of the disabled also point to the strong element of dependency in their role.

> The negative values that arise because a disabled person is really inferior in some areas is not strictly speaking a social psychological problem. It becomes so because the disabled person, in order to reach a goal, must often ask for help or tolerance. In doing this, he is forced to expose personal areas of his life-space and to accept from others a lower status; dependence, sympathy, pity, and curiosity, that acceptance of help often implies.[142]

Revealed in Myerson's quote is an additional often cited element of the disabled person's role, namely lower

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[141] Parsons, op. cit., p. 289.

[142] L. Myerson, "Physical Disability as a Social Psychological Problem," J.S.I., (Vol. 4, 1948), p. 3.

or inferior status. There is an obvious overlap between low status and dependency. Rarely would the incumbent of a dependent role be of high status. Although the reverse would not be true, legitimized dependency would seem to involve low status.

A number of writers have likened the lower status position of the disabled to that of ethnic minority groups and the assumed marginality prevalent in their position. In the following quote, Barker characterized the disabled along these lines:

> The position of the disabled has three outstanding characteristics: (1) It is underprivileged [lower status], (2) It is ambiguous and marginal, and (3) It involves a new and unknown situation.[143]

The last element outlined by Barker is a result of the first two. The uncertainty of the disabled person in social situations is heightened because, as Myerson points out,

> Disabled persons more often than other groups, are predisposed toward interfering, antagonistic, and excluding roles as a result of being cast in a dependent and inferior [lower status] position.[144]

In addition to the studies cited previously, investigations by Cowen[145], Giovannoni[146], Risk and Taylor[147],

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[143] R. Barker, "The Social Psychology of Physical Disability," J.S.I., (Vol. 4, 1948), pp. 28-38.

[144] L. Myerson, "Somatopsychology of Physical Disability," in W. Cruickshank, Editor, Psychology of Exceptional Children, (Englewood Cliffs, New Jersey: Prentice Hall), pp. 1-60.

[145] E. Cowen et al., "The Development and Testing of an Attitude to Blindness Scale," J.S.P., (Vol. 48, 1958), pp. 297-304.

Braverman[148], Schauer[149], and Snell[150] support the characterization of the role expectations associated with the disability in terms of dependency and lower status.

Writing on the relation of the disabled child and society, Freeman contends that the nature of the child's handicap, its management, and the attitudes of others (particularly significant others) leads to intellectual, social, and physical restriction and limitation.[151] In the present study, it is contended that the role expectations outlined previously are an obstacle restricting the disabled child's social experience and involvement and may impede normal cognitive and social development.

A somewhat paradoxical element in common sense thinking has it that the disabled person is more "sensitive

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[146] J. Giovannoni, "Social Role Behavior and Extent of Social Participation in Disabled and Non-Disabled Adolescents," (Unpublished Ph. D. dissertation, Brandeis University, Waltham, Mass., 1966).

[147] H. Rusk and E. Taylor, Living With a Disability, (Garden City, New York: Blakiston, 1953).

[148] S. Braverman, "The Psychological Roots of Attitudes Toward the Blind," N.O.B., (Vol. 45, 1954, pp. 151-157.

[149] G. Schauer, "Motivation of Attitudes Toward the Blind," N.O.B., (Vol. 42, 1951), pp. 39-42.

[150] E. Snell, "Physical Therapy," in W. Cruickshank and G. Raus, Editors, Cerebral Palsy: Its Individual and Community Problems, (Syracuse: Syracuse University, 1955), pp. 257-293.

[151] R. Freeman, "Emotional Reactions of Handicapped Children," R.L., (Vol. 28, 1967), pp. 274-282.

to others". This view is in direct opposition to the position taken here and the results of research done in the area. As Wright comments, "The notion that the disabled person is more sensitive than average probably means more easily hurt."[152]

Richardson has assembled socialization literature around the question of whether disability has a blunting or sensitizing effect on the child. He defines blunting as "the impoverishment of the individual's resources for dealing with people and observing them", and sensitizing as the converse.[153] Concluding this survey, he states, "The evidence is consistent in suggesting that handicapping has a blunting rather than sensitizing consequence."[154]

Thus far, the argument outlined suggests that the social nature of disability is such that it restricts social experimence and involvement necessary for normal cognitive and social development. The major role expectation related to disability appears to be dependency and related aspects. Although these dimensions are in keeping with the previous discussion, they (dependency in particular) present certain serious conceptual and methodological

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[152] B. Wright, Physical Disability: A Psychological Approach, (New York: Harper and Row, 1960).

[153] S. Richardson, "Some Social Psychological Consequences of Handicap," op. cit.

[154] Ibid.

problems that require additional treatment.

The concept of dependency and its measurement has recently come under critical review by Hartup[155] and Yarrow.[156] Before discussing the methodological controversy surrounding this notion, an additional qualification of its use in relation to disabled and non-disabled children is in order.

Dependency should be recognized as a value-laden concept and must be approached carefully as a means of characterizing children. While independence is glorified and idealized in Western Society, it appears that a justifiable amount of dependency is essential for social learning.[157] In perspective, it is thus natural, necessary, and desirable. Dependency should, therefore, be seen in relation to an appropriate degree of independence. As used here, dependence will refer to an excessive reliance on others in excess of what might be expected in normal child-child and child-adult relations. That is, the focus here is on inappropriate dependency that may restrict social experience and involvement.

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[155] W. Hartup, "Dependence and Independence," in Stevenson, *op. cit.*, pp. 333-364.

[156] M. Yarrow *et al.*, *Child Rearing: An Inquiry Into Research and Methods*, (San Francisco: Jossey Bass, 1968), pp. 21-55.

[157] A. Bandura and R. Walters, *Social Learning and Personality Development*, (New York: Holt, Rinehart and Winston, 1963).

The critiques by Hartup and Yarrow indicate that the conceptualizations, particularly psychoanalytic, of dependency as a unitary drive state are erroneous. Moreover, Yarrow's replication of the major studies by Sears and associates[158] failed to uphold the relationships previously reported and cast doubt on the validity of the presumed antecedents of dependency.

For use here, dependency and related ideas will be subsumed under the definitional and behavioral (as opposed to motivational) construct of patient role, with its role set counterpart of agent role. The unit of analysis in this investigation of the social nature of disability will, therefore, be the role set or, according to Merton, "that complement of role relationships which persons have by virtue of their occupying a particular social status."[159] If the ostensibly different role expectations of the disabled person's deviant social position are of any consequence, they should be portrayed in the contrasting behaviors of disabled and non-disabled children. The construct of patient-agent role will, therefore, refer to an action system in which the dependence-independence,

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[158] R. Sears, Identification and Child Rearing, (Stanford: Stanford University, 1965), pp. 27-76.
R. Sears, Patterns of Child Rearing, (Evanston, Illinois: Row Peterson, 1957).

[159] R. Merton, Social Theory and Social Structure, (New York: Free Press, 1957), p. 369.

nurturance-succorance, restraining-unrestraining, and autonomous-inautonomous manifesting and inducing behaviors of both ego and alter can be conceived and recorded.

The patient role may be characterized by its incumbent's being acted upon by the environment. To use Buber's terminology, the occupant of this role is on the latter end of an I-It relationship.[160] That is, he is manipulated by others as an object. This may be manifest in the technical focus on the person as an object to be cared for, looked after, treated, rehabilitated, and therapized. In terms of the requirements of professional ideology, the individual technically manipulated is objectified and personally externalized. In contrast is the agent role that may be described as one in which its occupants act upon the environment. Role relationships may be characterized as I-Thou or subject to subject. Persons internalize one another and hold their interaction as an end in itself, as opposed to being technically determined means to an end. The agentic person is active in contrast to the passive patient.

The patient role may then be viewed in terms of the following dimensions: (1) Dependence -- the excessive reliance upon others for assistance; (2) Succorance -- the seeking of help and support; (3) Restraint -- social

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[160] M. Buber, I and Thou, (New York: Charles Scribner and Sons, 1958).

and physical limitation and circumspection by others; and, (4) Inautonomy -- the lack of self determination and government. The agent role involves the converse and is comprised of independence, nurturance, unrestraint, and autonomy.

In terms of the theoretical rationale employed here, the agent role is a requisite to the social experience and involvement necessary for the achievement of concrete operations (cognitive development) and role taking activity (social development).

Although the operational indicators of these constructs will be outlined in the next chapter, a selective review of pertinent literature is in order here.

The critique by Hartup and Yarrow noted previously suggests that objective behavioral evaluations of dependence-independence are more valid and reliable indicators than self-reports and mother interviews.[161] The Children's Social Relations Rating Scale employed in this study for use by the children's primary teachers is an adaptation of an instrument devised and successfully employed in several studies by Beller. Focusing on the dimensions of dependence and independence, he has consistently found significant (1) differences between subject variance, (2) covariation among components of each of the parts, and

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[161] Hartup, op. cit., p. 338.
Yarrow, op. cit., p. 31.

(3) a low but significant negative correlation between the two dimensions.[162] Moreover, he reports a consistent general decline in dependence and an increase in independence with age.[163]

The dimensions of succorance-nurturance, restraint-unrestraint, and inautonomy-autonomy are indicated in three series of questions to be outlined in the next chapter's discussion of the Children's Social Relations Interview Schedule. The basis of this instrument is a schedule devised by Giovannoni to assess the social participation of disabled and non-disabled adolescents. Her findings indicate the ability of her measures to discriminate the extent of social participation between the two groups in terms of formal activities.[164] This instrument and the others employed herein required specific adaptation to the particular age groups under investigation.

In sum, it has been argued that a relation exists between thought and action, and that the achievement of concrete operations is necessary for the decline of egocentrism and the development of role taking activity.

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[162] E. Beller, "Dependency and Independence in Young Children," J.G.P., (Vol. 87, 1955), pp. 23-25.

[163] E. Beller, "Dependency and Autonomous Achievement-striving Related to Orality and Anality in Early Childhood," C.D., (Vol. 28, 1957), pp. 287-315.

[164] Giovannoni, op. cit.

Moreover, the notion has been advanced that this accomplishment is a result of the interplay of social forces that require the child to take into account the role attributes of others. This development presupposes unrestricted opportunity for social experience and involvement. Finally, it has been contended that the orthopedically disabled child will be restricted in typical socialization experiences due to his deviant social position and, consequently, impeded in cognitive and social development in relation to the non-disabled child.

Empirical Generalizations

On the basis of the material presented in prior sections, the following empirical generalizations are derivable: (1) Cognitive (concrete operations) and social (role taking activity) development are interrelated; (2) Cognitive and social development are dependent on unrestricted social experience and involvement; and finally, (3) Orthopedic disability restricts social experience and involvement and subsequently impedes cognitive and social development.

CHAPTER IV

METHODS AND PROCEDURES

Although this study was exploratory in the sense that it covered somewhat untrodden ground, it was, nonetheless, possible to employ a standard research design and fairly well established measuring instruments.

The methods and procedures employed herein are in the Geneva Tradition that has emerged during five decades of research by Piaget and his associates. While early work in this tradition was largely natural-descriptive, recent investigations, such as the present one, have attempted to provide causal-analytic insight into cognitive and social development. The ultimate aim of both emphases in their exploratory stages is to provide information prior to intense longitudinal study.[165]

Research carried out in this tradition may be characterized by the use of the Méthod Clinique -- a combination of interviewing and experimental techniques. Its major distinction is an attempt to formulate questions and tasks appropriate to the child's level of comprehension. This approach has been described as "standardized free interrogation" conducted within a research design emphasizing

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[165] W. Kessen, "Research Design in the Study of Developmental Problems," in P. Mussen, Editor, Handbook of Research Methods in Child Development, (New York: J. Wiley and Sons, 1960), p. 51.

internal validity.[166] Moreover, this emphasis is perhaps best thought of in the "context of discovery" rather than the "context of justification".

The Subjects and Research Design

Eighty children participated in this investigation. Forty were selected from children attending Glenrose Hospital School located in Edmonton, Alberta. Glenrose is a fully staffed school that is part of a total therapy unit for educable disabled children at Glenrose Provincial General Hospital. The other forty children were drawn from Allendale, an Edmonton Public School.

Both pools of subjects were restricted to boys and girls between six and twelve years of age (the period delimited by Piaget as the stage of conrete operations), Canadian born, English speaking, and whose major provider's occupation fell into the middle classes of Blishen's Occupational Class Scale for Canada.[167] In addition, the subjects were restricted to those children whose available IQ scores, when standardized according to Binet scores[168], ranged between 85 and 125. Because some of the pre-recorded Binet scores were reported as nominal classes, the

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[166] L. Yarrow, "Interviewing Children," in Mussen, Ibid., p. 583.

[167] B. Blishen, "The Construction and Use of An Occupational Class Scale," C.J.E.P.S., (Vol. 24, 1958), pp. 519-531.

[168] See Appendix Item A for conversion tables.

IQ's were grouped as follows: (1) Low average (80-95), (2) Average (96-111), and (3) Bright average (112-125). Extremes in SES and IQ were, thus, avoided.

The Glenrose group was further restricted to "day" patients or "day" patients whose status changed within the last school term to that of "in" or "out" patient. This restriction was imposed to avoid the possible effects of institutionalization. Moreover, this group was limited to severe orthopedically disabled children. Severe orthopedic disability was operationally defined as a physical impairment requiring mechanical assistance in movement, such as a body brace or wheel chair. A further distinction can be made in some cases by defining orthopedically crippled children as those requiring human assistance in movement. The types of disability included were congenital deformities, muscular dystrophy, and cerebral palsy. Although it may be argued that all forms of orthopedic disability involve central nervous system damage, it was possible to minimize this effect by further restricting the disabled group to only children with minimal speech, sight, and hearing impairments.[169]

The aim of this investigation is to compare the disabled with the non-disabled children in terms of their social experience and involvement and cognitive and social

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[169] Extent of disability was determined through the subject's medical history and hospital records.

development. The emphasis on internal validity and the availability of previous studies outlining the major correlates of development in this area enable the use of the efficient precision matched pairs design,[170] and the statistical tests appropriate for two related samples.[171] The control potential of this design was further optimized by the use of randomization procedures whenever possible.

Children in the two subject pools were matched according to age, sex, and IQ. These match variables were selected on the basis of the previously reviewed studies on the correlates of cognitive and social development. When more than one subject met the match criteria as a possible pair mate, assignment was randomly made on the basis of a coin flip. The matched pool consisted of some sixty-five pairs from which the forty final pairs were randomly selected.

Instrumentation

The measuring devices employed in this study were selected on the basis of previously reviewed studies indicating their reliability and validity and pretest outcomes.

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[170] F. McGuigan, Experimental Psychology: A Methodological Approach, (Englewood Cliffs, New Jersey: Prentice Hall, 1965), pp. 138-165.

[171] J. Roscoe, Fundamental Research Statistics for the Behavioral Sciences, (New York: Holt, Rinehart, and Winston, 1969), pp. 170-174.

The Pretest

The pretest involved twenty matched subjects, ten disabled children from Akron Children's Hospital and ten non-disabled children of department members.

During the pretest the instruments and their administration procedures were finalized in terms of language (questions were screened so as to be free from words that were beyond the comprehension of children in the age group under investigation). In addition, the pretest with the non-disabled children was conducted in the department's small groups laboratory so that the interview techniques and procedures could be videotaped and closely scrutinized. The principal investigator conducted all of the pretest and final sessions.

As a result of the pretest, the decision was made to employ the Feffer R.T.T. rather than the simpler but less well established tasks developed by Flavell. This decision was based on the pertinence of the rationale underlying the R.T.T. to the conceptual schemes of Piaget and Mead, the avilability of a detailed procedure, coding, and scoring manual, and a number of previously reported reliability and validity studies. The use of Concrete Operations Tasks employing solid materials was decided upon on the basis of their more extensive use and the wish to avoid the mess that might result from using tasks involving liquids. The Children's Social Relations Rating Scale

employed by the subject's primary teacher was selected for use over the Smith Mother Interview Schedule[172] covering the same dimensions on the basis of economy and, more important, its showing of greater reliability in previously reviewed studies. The Children's Social Relations Interview was finalized in terms of its dimension, content, and coding attributes. Moreover, it was found that the following sequence of administration was most enjoyable and interesting to the children: C.O.T., R.T.T., and C.S.R.I.S. These instruments will be described in their order of administration in the following section along with the C.S.R.R.S.

Initiating the Tasks and Interview

"Hi! I am ________________."

"What's your name?"

"I would like to ask you some questions and play some games with you."

"Since I can't remember and write down all we say, I am going to record our talk on this tape recorder."

"Would you like to see how it works and hear your voice?" (If desired, demonstrate the machine.)

So commenced the sessions in which the children were administered the tasks and interview schedule. In actuality, however, the child's encounter with the

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[172] H. Smith, "A Comparison of Interview and Observation Measures of Mother Behavior," J.A.S.P., (Vol. 57, 1958), pp. 278-282.

investigation began with the assistant's bringing the child from his classroom. The assistant was instructed to tell the child that he was going to see a man that wanted to talk and play a few games that might be fun. The sessions were carried out in a relaxed manner and were seemingly enjoyable experiences for the children. Since the coders had the opportunity to hear the entire session, they were asked to rate the interview and task administration sessions lasting from forty-five minutes to an hour, in terms of the following categories: (1) Poor, (2) Fair, and (3) Good.

The subsequent sections will outline the indicators of cognitive development (operationally defined in terms of the concrete operations tasks), social development (indicated by the role taking activity tasks), and social experience and involvement (reconceptualized in terms of agent-patient role behavior and operationalized in terms of the social relations interview and rating scale).

The Concrete Operations Tasks

Piaget has indicated that concrete operations emerge around age six and continue to develop until a relatively steady state or equilibrium is reached and the next stage begins. Workers in the Geneva Tradition have outlined the cognitive structures that develop during this stage, and have devised a number of tasks that reflect their presence in the child. The particular tasks selected for this study are those that have had widest application

and have been found to reflect the earliest achievements in concrete operations, namely, conservation of quantity and weight, formation of classes, and the serialization of asymmetrical relations. Cognitive development is, thus, operationally defined in terms of the following indicators of the attainment of concrete operations.

Conservation of Quantity and Weight (Clay Problems)

The conservation of quantity is a clay problem where two balls of clay are presented to the child -- one placed in front of the child, and the other in front of the investigator. The investigator changes his ball of clay into a sausage-shaped roll, a flat pancake, and five round balls. In each instance, the child is asked to indicate if the two pieces of clay (original and transformed) remained the same in terms of quantity. The same procedure is carried out to determine the achievement of conservation of weight. So as to avoid repetition bias, the quantity task is given first and the weight task is given last following the classification and serialization problems.

The procedure for administrating these tasks is as follows:

(1) "Here are two balls of clay." (The investigator places one ball in front of himself and the other in front of the child.)

(2) "These two balls of clay are supposed to be exactly alike, just the same." (If the child does not find them alike, allow him to make the necessary alterations.)

(3) "O.K., now watch what I do." (The investigator rolls his ball of clay into a sausage-shaped roll.)

(4) "Is there the same amount in yours (pointing to each piece) as mine?"

(If the child appears to be guessing, ask him why he gave the answer he did.)

This procedure is repeated twice, respectively shaping the clay into a flat pancake and five round balls.

After the other C.O.T. are given, the clay problem is repeated to determine the achievement of conservation of weight. In this instance, the investigator asks, "Is yours (pointing to each piece) the same weight as mine?"

Classification (Marble Problem)

This task involves a marble problem to determine the child's ability to form classes. Seventeen green and three yellow marbles are placed on a tray in front of the child. He is then asked if there are more green marbles or glass marbles and a series of related probes.

The following outlines the procedures involved:

(1) A tray of seventeen green and three yellow marbles is placed in front of the child. "Here is a tray of marbles. They are all made of glass. Every single one is made of glass." (The investigator taps a yellow one on the table.)

(2) "Which are there more of, green marbles or glass marbles?"

(3) "Are all the marbles made of glass?"

(4) "If I take away all the green marbles, will there be any marbles left?"

(5) "Which are there more of, green marbles or glass marbles?"

Serialization (Straw Problem)

To determine if the child can serialize asymmetric relations, a task involving ten plastic straws of varying lengths has been devised. The subject is asked to place in order the randomly mixed straws according to length starting with the very smallest. The child is then asked to hand the straws to the investigator starting with the smallest.

The administration of this task proceeds as follows:

(1) Ten plastic straws of varying length are placed in front of the child.

"Can you put all these straws in a line here (pointing) according to size starting with the very smallest one?" (If the child cannot grasp the straws, the investigator can make the ordering under the child's direction.)

(2) "Now give me the very smallest (the investigator holds out his hand) and so on until all the straws are returned one by one."

All of these deceptively simple tasks are described by Flavell[173], and have been used in the studies cited previously with considerable success. The subject's responses to these tasks was either right or wrong, and since all of the operations emerge concomitantly, they

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[173] Flavell, The Developmental Psychology of Jean Piaget, op. cit.

were all given the same weight. Scoring was on the basis of the total number of correct responses. Possible scores ranged for the quantity task from 0-3, the weight task 0-3, the classification task 0-4, and the serialization task 0-2.

The Role Taking Task

The research reviewed in a prior section by Dymond, Feffer, and Flavell provide the background and basis for this investigation. The decision to employ Feffer's Role Taking Task as an indicator of social development was based on its extensive application, the availability of the necessary materials, a detailed procedure and scoring manual, and the adequacy of attempts to establish its reliability and validity.[174]

The materials used in the Role Taking Task are taken from Schneidman's Make A Picture Story Test -- a T.A.T. type projective technique.[175] The materials consist of two background pictures with three persons in each. The first scene has a living room as background with a little boy or girl (the character of the same sex as the subject is used in the scene) and a mother and a policeman. The second scene takes place in an attic with a boy, girl, and man present. The child is asked to make up a story about each

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[174] M. Feffer and M. Schnall, "Role Taking Task Scoring Criteria," (Unpublished manuscript, Yeshiva University, New York, New York and Brandeis University, Waltham, Mass., 1967).

[175] E. Schneidman, The Make A Picture Story Test, (New York: Psychological Corp., 1949).

scene and then retell it from the point of view of each character in the story other than that of the child character of the same sex. This restriction assumes that the subject's initial story will be from the point of view of self as projected into the same sexed character.

The procedure for administering this task is as follows:

(1) Place the stimulus card in front of the subject.
"Look at this picture."
"Could you tell me a make believe story about it?"
"Will you make up a story about what is going on here?"

(2) "Let's replay the story you just made up."
(Rewind the recorder and replay the initial story.)
"Listen to it closely."

(3) "Now let's pretend you are this person (point to specific character: Card 1: policeman and then mother; Card 2: child of opposite sex of subject and then adult)."

"If you were there while all this was going on as (point to character), how would you tell what happened?"

"If you were in (name character's) shoes, how would you tell the story, and how would you feel about it?"

"Pretending you were (name character), how would you size up the situation?"

(Give subject time to think.)

"How would (name the character) see the others in the story?"

The R.T.T. performance is evaluated in terms of the degree to which the subject is able to shift from the initial orientation, refocus (decenter) upon his actors

from different roles, while maintaining continuity between his various versions of the initial story. In demonstrating role taking activity, the child evidences a type of decentering that is coordinated with previous and anticipated focusings. Conversely, the lack of consistency or coordination between viewpoints is taken as inadequate role taking activity, and indicates shifts of focus that are not guided by the perspectives of others. These considerations are the basis of the coding and scoring categories which are ordered in terms of the degree to which an increasing number of aspects of a situation are simultaneously considered.

The first category is referred to as "simple focusing" and reflects the minimum ability to decenter or refocus on content. Scores in this class require that the subject provide at least one self entry (character of role being taken), whether or not its content is consistent with the initial story. Scoring in this category reflects an inconsistent change between the actors as described in the initial story and as described in the role as it appears in retelling.

The second scoring category, "consistent elaboration", requires not only self elaboration, but, in addition, demands an elaboration entry on the same actor. In both cases, the elaboration must be consistent with the initial story. This category represents evidence that there

is continuity between the actor as described in his own role. For example, if the description of the boy actor in his own role was that of being "unhappy", it would be consistent with that of the boy in the initial story having had a "bad day at school".

The third category of "perspective elaboration" requires that the self and elaboration entries must not only be consistent with the initial story, but also indicate a proper inner-outer orientation. That is, the self entry must be inner oriented, and the elaboration entry must be outer oriented. The scoring criteria for this category is as follows: (1) The child's performance shows evidence of the continuity between successive descriptions of an actor, and (2) That these descriptions differ from role to role in the sense that the description of an actor in his role should have an inner orientation as opposed to an external orientation of that actor from a viewpoint other than his own. If in the initial story the policeman is "telling something" and when the subject is in the role of the mother, she is "listening to him talk", there is an instance of "perspective elaboration".

The fourth category, "change of perspective", requires that the child have two perspective elaborations involving two actors and the same actors' roles. The subject must not only take the inner orientation appropriately in one role, but in two. Moreover, he must have

spoken about the others with an outer orientation. This simultaneous achievement of different perspectives on the same actors, depending on the role taken, is both qualitatively and quantitatively superior to the preceding classes. Represented in this category is the level of relatively clear ability to shift one's point of view or to engage in role taking activity. It requires that two of the actors in one story meet the requirement for perspective elaboration, and the two must reflect appropriate internal and external orientations. This category depends on the level of perspective elaboration achieved. That is, the subject must have the capacity to switch from an inner to an outer orientation in viewing the same actor.

The four categories summarized above are analyzed into a total of twenty points ordered according to the rationale underlying the R.T.T. There are two stories with two retellings per story. The total points are added and averaged to yield an R.T.T. score ranging from 0 to 20.

Children's Social Relations Interview

The role expectations associated with disability, namely dependence and inferior status, and role behaviors indicative of these aspects of their position were investigated in role sets or interactions of the patient-agent construct conceptualized and operationalized in terms of

the following interactions and respective verbal indicators. Succorance involves the seeking of help and support. Restraint indicates physical and social limitation and circumscription by others. Finally, inautonomy refers to the lack of self-determination and government.

The C.S.R.I. followed the C.O.T. and the R.T.T., all of which were tape recorded in their entirety. Although the questions and scoring procedures emerged from pretest sessions, the scoring codes were derived from a content analysis of overall responses. Total scores were given in each of the categories.

Part I

The succorance-nurturance dimension involved a series of questions dealing with the role relationships of helped-helper, receiver-giver, and follower-leader. The child was oriented to each of the scored questions by a preliminary request to relate behavioral situations relevant to their occurrence. Moreover, following Giovannoni's lead, the additional aspect of preference was ascertained by requesting supplemental information regarding enactment.

The following is the entire first section of the interview and covers the specific indicators of succorance-nurturance. The coding categories and score range follow each question.

"Now, I am going to ask you some questions."

"Would you tell me about a situation where you helped somebody? Who, when, and why?"

"Now tell me about a time when somebody helped you. Who, when, and why?"

(1) "Which do you think you are most often, the one who helps or the one who gets helped?"

(0. No response; 1. Helped; 2. Both; 3. Helper)

(2) "Which do you prefer to be, the one who helps or the one who gets helped?"

(0. No response; 1. Helped; 2. Both; 3. Helper)

"I would like you to tell me about some time when you gave something to someone. Who, when, and why?"

"Now tell me about some time when someone gave you something. Who, when, and why?"

(3) "Which do you think happens most often, you give somebody something, or somebody gives you something?"

(0. No response; 1. Receiver; 2. Both; 3. Giver)

(4) "Which would you rather have happen, you give something to someone, or have someone give you something?"

(0. No response; 1. Receiver; 2. Both; 3. Giver)

"Sometimes when you are with other people, a decision or choice has to be made, like deciding where to go or what to do. Tell me about a time when you were the one who made the decision or made up your mind as to what was going to be done. Who, when, and why?"
(Be certain the child understands the meaning of the word decision.)

"Now tell me about sometime when someone else made the decision. Who, when, and why?"

(5) "Which position do you think you are in most often, the one who makes the decision or the one who has the decision made for him by someone else?"

(0. No response; 1. Follower; 2. Both; 3. Leader)

(6) "Which do you prefer to be, the one who makes the decision or the one who has the decision made for him by others?"

(0. No response; 1. Follower; 2. Both; 3. Leader)

Part II

The restrained-unrestrained dimension of the patient-agent role set is indicated in the following items of Part II of the interview schedule. The questions and probes are an attempt to determine the extent to which the child is circumscribed or curbed both quantitatively and qualitatively in his relations.

(1) "Where do you spend most of your play time?"

(0. No response; 1. Geographically narrow; 2. Moderate; 3. Extensive)

(2) "Do you play mostly with other children or by yourself?"

(0. No response; 1. Alone; 2. Both; 3. Others always)

(3) "Where do most of the kids you play with live? How did you come to know them? How many friends do you have, do you usually play with?"

(0. No response; 1. Socially narrow; 2. Moderate; 3. Extensive)

(4) "What is a best friend? Do you have any best friends? Who and where?"

(0. No response; 1. None; 2. Several; 3. One)

(5) "Do you belong to any clubs or special activities groups? How many? Describe them."

(0. No response; 1. None; 2. Several; 3. Many)

(6) "Are you involved in as many activities as you would like to be? Elaborate."

(0. No response; 1. Rarely; 2. Sometimes; 3. Often)

Part III

The following questions refer to the inautonomy-autonomy dimension. These items attempt to determine the extent to which the child asserts himself in relation to others and is self-directed and governing.

(1) "Do you ever get in fights or arguments? If they occur, do people help you settle them? Who and when?"

(0. No response; 1. Always; 2. Sometimes; 3. Rarely)

(2) "Are you allowed to go and come as you please, or do others keep a close watch on you? Who and when?"

(0. No response; 1. Always; 2. Sometimes; 3. Rarely)

(3) "Does anyone ever treat you like a baby? Who and when?"

(0. No response; 1. Always; 2. Sometimes; 3. Rarely)

(4) "Do you ever go places all by yourself, without anyone going along with you? When and where?"

(0. No response; 1. Rarely; 2. Sometimes; 3. Often)

(5) "How often do you make plans without asking someone for permission, or if it is okay? When and why?"

(0. No response; 1. Rarely; 2. Sometimes; 3. Often)

(6) "How often do you buy something all by yourself without asking someone if it is okay? When and why?"

(0. No response; 1. Rarely; 2. Sometimes; 3. Often)

Children's Social Relations Rating Scale

After pretesting and the publication of Yarrow's penetrating critique of the use of mother interviews[176], it was decided to employ a teacher type rating scale in assessing the dependence-independence dimension. The form used is an adaptation of a scale developed by Beller and found, in subsequent reliability and validity studies, to be one of the better indicators of this dimension.[177]

The scale covers the following components: dependence -- seeking help, physical contact, proximity, attention, recognition (praise and approval), and extent of social participation; Independence -- taking initiative, overcoming obstacles, persistence, satisfaction from work, wanting to do things by one's self, and intensity of social involvement.

The children's primary teachers were asked to observe them for a week and rate them on each item according to a seven point scale. Prior to the ratings and the subsequent reliability check re-ratings, the investigator met with the teachers and instructed them in the use of the scales.

Two criteria were used to define the seven point scale. The first was frequency and the second was

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[176] Yarrow, op. cit.

[177] Beller, op. cit., Hartup, op. cit., and Yarrow, op. cit.

persistence. Points 7, 5, 3, and 1 were to be used whenever both criteria applied equally. Points 6, 4, and 2 were to be used as intermediate points, and were to be checked only when one of the two criteria applied to the other would fall above or below that point. The mean of the separate dimensions was employed as an index of the subject score in each category.

For illustrative purposes, the items have been divided into their respective categories of dependence and independence. In the form actually employed, the items from each category were interspersed so as to avoid central tendency error. Moreover, the essence of the instruction protocol has been included under each item.

Dependence

(1) How often does this child seek help or assistance from another person?

(By "help" is meant any form of assistance from another person, e.g., doing something for the child like dressing, washing, finding a toy, pushing him on the swing, protecting him against another when he is attacked or something is taken from him, giving instructions and guidance [like demonstrating how to build or play something], giving what he asks for, e.g., a toy to play with, etc.]

Very Rarely   Rarely   Frequently   Very Frequently
1   2   3   4   5   6   7

(2) How often does this child seek praise and approval?

(Praise and approval are taken to mean any form of recognition such as the child running to the teacher to show what he did or calling the teacher to see what he did.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(3) How often does the child seek physical contact with the teacher?

(Physical contact: wants to be picked up, holds onto the teacher's clothes, hugs adjult's knee, holds or reaches for the teacher's hand, puts arm around the teacher's neck.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(4) How often does this child seek attention?

(How often does the child manage to keep others occupied with him? Talking to him, answering questions, explaining, and watching. Ignore whether the child does these things in a pleasant or unpleasant way, whether he is clever and skillful or clumsy and inefficient (a nuisance) in drawing attention. Use as your criterion only how often he manages to keep others occupied with him.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(5) How often does this child seek to be near others?

(How often does the child manage to sit near or play around others regardless of whether he interacts with them or not. This differs from seeking attention inasmuch as it refers to just proximity.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(6) What is the extent of this child's participation in organized social activities?

(The question calls for an assessment of the number and variety of the child's social activities. The child's ostensible interests are not as relevant as his actual engagement in social activities.)

Very Limited Limited Extensive Very Extensive
1 2 3 4 5 6 7

Independence

(1) How often does this child appear to derive satisfaction from his (her) work?

(This can be judged from the following behavior: The child finishes an activity without asking the teacher for comment or commenting on the work of others, and moves away from the completed activity and gets ready for something else.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(2) How often does the child attempt to carry out routine tasks by himself (herself)?

(Routine tasks include such things as dressing, washing, going to the bathroom, putting toys away, etc. An effort at doing these sorts of things is more important than if they are done clumsily or not.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(3) How often does the child attempt to overcome obstacles in the environment by himself (herself)?

(Obstacles can refer to physical impediments such as doors, drawers, windows, or such things as missing a tool, puzzle part, or towel. The extent of the child's striving to overcome obstacles by himself can be seen when, after turning away from an ongoing activity (play or work) he returns and continues after overcoming the obstacle.)

Very Rarely Rarely Frequently Very Frequently
1 2 3 4 5 6 7

(4) How often does the child take initiative in carrying out his (her) own activity?

(Does the child know what he wants to do and

proceed to do it? This can be distinguished from going around looking for something to do, wandering around aimlessly or wanting to join activities already begun.)

Very Rarely Rarely Frequently Very Frequently

1 2 3 4 5 6 7

(5) How often does the child complete an activity?

(Once a task is set, does the child carry it out to its completion? This can be distinguished from giving up easily, getting bored and distracted easily. Moreover, it can be distinguished from rigid perseverance, i.e., a child may keep on doing something even though inappropriate or unsuccessful.

Very Rarely Rarely Frequently Very Frequently

1 2 3 4 5 6 7

(6) What is the intensity of the child's involvement and participation in the social activities that engage him (her)?

(Intensity refers to the depth of the child's involvement in the group, i.e., his belonging to the group. The desires of the child are not as important as his actual inclusion in the group.)

Rarely Involved Slightly Involved Involved Deeply Involved

1 2 3 4 5 6 7

Data Preparation and Analysis

This section will indicate the details of the data preparation and analysis which includes coding and scoring procedures, reliability and validity checks, and the applicable statistical tests and measures.

The tape recorded sessions and teacher ratings were scored and coded by two assistants working independently. These assistants were selected on the basis of prior

research experience with children and carefully instructed in the previously designated coding and scoring procedures. Intercoder reliability was determined twice during data preparation and once after it had been completed. Discrepancies between the separate codings were discussed in round robin meetings, and finally resolved by the decision of the investigator.

In addition to the reliability and validity information provided in the previously reviewed studies, the instruments were assessed in terms of their intra- and inter-dimension homogeneity by the computation of KR-20 reliability coefficients. Moreover, the stability of the rating scale employed by the subject's primary teacher was assessed by the determination of test-retest reliability. Due to pretest contamination, the initial ratings were employed in the final data analysis. As an adjunct to the provision of quantitative reliability and validity information, a section on qualitative observations will be included.

The level of measurement was assumed to represent at least an "ordered metric" and, as Blalock contends, allows for the application of tests and measures appropriate for interval data.[178] The use of a matched groups design

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[178] H. Blalock, Social Statistics, (New York: McGraw Hill, 1960), p. 207. S. Labovitz argues convincingly for the use of interval measures with most ordinal data in "The Assignment of Numbers to Rank Order Categories," A.S.R., (Vol. 35, 1970), pp. 515-524.

enabled the employment of the "t" test of significance of assumed normally distributed differences between related samples.[179] Reliability data is based on the Kuder-Richardson formula 20 reliability coefficient (KR-20) and Pearson's Product Moment Correlation.[180] Accompanying this information are tabled critical values.[181] Moreover, a within groups deviant case analysis has been provided as a means of determining the nature of those cases of low and high scores that departed from the generally predicted trends. This analysis, based on the Mann-Whitney U-test of significance between groups of unequal size, focused on the variables of grouped age, sex, grouped IQ, and program status.[182]

Prior to stating the hypotheses in terms of the previously outlined indicators, a review of the theoretical rationale is in order.

The notion of cognition advanced in this study views cognitive structure as an equilibrium process and suggests that changes on the cognitive level will accompany changes on the environmental level. Cognitive development

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[179] Roscoe, op. cit.

[180] G. A. Ferguson, Statistical Analysis in Psychology and Education, (New York: McGraw Hill, 1966), p. 380.

[181] Roscoe, op. cit., p. 301.

[182] Ibid., p. 175. See Appendix Item B for codings.

has been operationalized in terms of the Concrete Operations Tasks (C.O.T.) and indicates the achievement of conservation, classification, and serialization. Social Development has been conceptualized as a cognizing of the role attributes of others and is indicated by an assessment of role taking activity according to the Role Taking Task (R.T.T.). The assumption is made that the increased capacity to handle complex cognitive structures parallels the capacity to deal with increasingly intricate social relationships.

The aspect of cognitive and social development under investigation involves the social psychological factors that enable the young child, whose preliminary role behavior has been restricted to mere role playing, to become capable of taking the role of others and generalizing these multiple perspectives.

The suggestion of this rationale is that a child cannot shift to another point of view or take the role of the other if he lacks the necessary cognitive capacity and role expectations. That is, a child must be able to cognitively organize the actions of persons around positions for which he has developed and learned prescribed sets of rules, rights, and duties. A person cannot take a role for which he has no expectations. In short, interpersonal acts are organized within a cognitive framework of role expectations that are acquired in the course of

social experience and involvement. Such restrictions, particularly in the areas of typical interpersonal conflict and defense, may act as impediments to normal cognitive and social development. More specifically, the social definition of orthopedic disability as deviant and the assignment of the role expectations of dependence and inferior status (conceptualized by means of the patient-agent construct and operationalized in the succorance-nurturance, restraint-unrestraint, inautonomy-autonomy dimensions of the Children's Social Relations Interview Schedule (C.S.R.I.S.) and the dependence-independence dimensions of the Children's Social Relations Rating Scale (C.S.R.R.S.)) may constitute a barrier to normal childhood socialization that should be reflected in the achievement of concrete operations and role taking activity.

Hypotheses

The problem under study asks the subsequent question: To what extent do disabled children show differential social experience and involvement and cognitive and social development from non-disabled children?

In terms of the propositions derived from the theoretical rationale and the indicators outlined, the general and specific hypotheses employed in investigating the problem under study may be stated as follows:

General Hypotheses

(1) The parallel achievements of concrete operations and role taking activity are a function of agentic role enactment.

(2) The parallel achievements of concrete operations and role taking activity will be retarded as a function of patient role enactment.

Specific Hypotheses

(1) The disabled group of children will enact the patient role to a significantly greater extent than the non-disabled group of children.

(2) The non-disabled group of children will enact the agent role to a significantly greater extent than the disabled group of children.

(3) The disabled group of children will display a significantly lower level of achievement of concrete operations (cognitive development) than the non-disabled group of children.

(4) The disabled group of children will display a significantly lower level of role taking activity (social development) than the non-disabled group of children.

CHAPTER V

RESULTS AND RETROSPECT

The task of this chapter is to portray the outcome of this investigation's attempt to determine the social psychological consequences of orthopedic disability on social experience and involvement and, in turn, cognitive and social development. Before presenting the data regarding the hypotheses a consideration of certain qualitative observations and an evaluation of the instruments may provide a more complete picture of the investigaion.

Qualitative Observations

This section will be primarily concerned with depicting the children's social worlds as revealed in task performance, observations made during the interview sessions and while the investigator was associated with Glenrose and Allendale Schools.[183]

The first group to be interviewed was that of the disabled children at Glenrose. From the onset it was

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[183] Observation was facilitated at Glenrose School by one way mirrors in classrooms. Both schools allowed the investigator to move about their premises freely observing the children in a variety of situations. Moreover, time was allotted for an informal chat of approximately fifteen minutes after each interview. These tape recorded discussions covered such topics as general interests, daily activities, special activities, current events, school, family, and friend relations. All field data and notes were recorded at the end of each day.

evident that these children had been involved in similar interview situations. They had apparently grown accustomed to periodic interviews in the course of various diagnostic assessments from the numerous divisions caring for them -- education, medicine, dentistry, speech, social service, psychiatry, psychology, physio-and occupational therapy. After being assured that they were not to undergo an uncomfortable examination or therapy they became quite cooperative, almost docile, and set upon the tasks with unusual determination.[184]

The non-disabled children seen at Allendale School were, in contrast, more aloof and neutral in response to the tasks and interview.[185] An apt characterization is that the non-disabled group approached the tasks as if they were a game, while the disabled group engaged the tasks as if they were a test.

The disabled children appeared more unsure of directions or, perhaps, more concerned about "getting them straight". In addition, sub-vocalization and getting

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[184] M. Orne's observations regarding the "demand characteristics of the experiment" are dramatically applicable here. See his article "On the Social Psychology of the Psychology Experiment," A.P., (Vol. 17, 1962), pp. 776-783.

[185] Of interest was the fact that most of the children, having been born in the "age of electronics", were quite accustomed to tape recorders and having their voices recorded. Perhaps more surprising was the lack of novelty of the video-tape experience provided some of the children in the pretest group.

"wrapped up" in the tasks was more prevalent in the disabled group.

As might be expected the activity levels of both groups subsided about the same time during the sessions. This was evidenced in a decrease in restlessness and in chair movements after the C.O.T. were begun.

Insofar as test functioning might have been related to performance time, the overall productivity of each group, measured by length of formal interview, was determined. The average performance time, forty-five minutes for the disabled and forty-seven minutes for the non-disabled children, was similar for both groups.

On the whole, the information provided above supports the employment of the patient-agent role construct. That is, the disabled child, administered to by a wide variety of people, appears tractable and self-conscious, while the non-disabled child manifests a greater freedom, providing he "stays out of trouble", to act upon his environment.

Moving to specific task performance, it may be noted that a number of investigations have remarked on the capacity of the C.O.T. to discriminate and reveal age gradations in cognitive achievement.[186] The reported clear

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[186] Flavell, The Developmental Psychology of Jean Piaget, op. cit. These tasks are an excellent rapport builder insofar as they are colorful and apparently intrinsically interesting.

demarcations of grade level performance on the C.O.T. held true for the non-disabled children, but were obscured in the more homogeneous performance of the disabled group. That is, grade level discriminations were less prevalent among the disabled children. This may have been due to the incomparability of grades between the two groups.

As outlined previously the R.T.T. involves a complex system of scoring that accounts for only certain aspects of social behavior. Focus is restricted to the cognitive activity involved in organizing and verbalizing the actions portrayed in the stimulus scenes. There are, however, additional important dimensions of the R.T.T. not revealed in the subjects' scores.

For the most part the disabled and non-disabled children employed similar fantasies in their initial stories. The themes usually depicted the living room scene as involving a child having to be brought home to mother by a policeman after having done something wrong. On several occasions the non-disabled group described the child as a runaway being returned. The attic scene, due to the facial expressions of the characters involved, was usually described in terms of a father scolding the boy and girl for playing in the attic. Moreover, it is noteworthy that both groups made similar references to physical

activities and capacities.[187]

The disabled group seemed shy and inhibited in their story tellings and less accustomed to fanciful iterations. Moreover, the stories of the disabled children appeared to be a mere chain of events without emotional linkage, while those of the non-disabled group often displayed a clear sequence of beginning, middle, and end involving emotional interplay between actors. In addition, the disabled group's stories were more sober and less purposely humorous than those of the non-disabled children.

Finally, the disabled children appeared more unsure and critical of their stories and often commented "That wasn't any good, was it?" and "That was silly, huh?" These expressions may be taken as evidence of dependency behavior -- the seeking of support, approval, and guidance.

The information conversation surrounding the C.S.R.I.S. items helped to reveal the contrasting social worlds of disabled and non-disabled children. The disabled child's social activities were centered closely around the home and school. Playmates often have to be brought in and the activities of the neighborhood seemed of little relevance. Siblings and other relatives seemed more often involved in the play of the disabled children.

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[187] On the part of the disabled children this may be interpreted as a projection of a false body image and a denial of physical impairment.

The children in both groups verbalized similar attempts on the part of parents to discipline, induce autonomy, and establish sex role identities.[188]

With the exception of organized events such as wheel chair hockey and basketball, the disabled children's activities usually involved sedentary games, model building, and doll play. Participation in Cubs, Scouts, Brownies, and Guides was prevalent among all the children.

Both groups demonstrated parallel interests in popular TV shows and reflected similar internalization of their advertising emphases. The sugar cereals "Captain Crunch" and "Quisps" were the favorites. The boys were absorbed in "Hot Wheel" cars and the girls with "Chatty Cathy" dolls. As one might expect, Mustang bikes were not a central object of concern and pride with the disabled group as they were with the non-disabled children. These observations on mass culture and consumer items indicate homogeneous influences on both groups of children.

The most prevalent difference between the two groups occurred in terms of concern and interest in current events. The non-disabled group appeared more knowledgeable about Biafra, Hippies, Moon Shots, Vietnam, and Canadian-American relations than the disabled children. Assuming

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[188] It seemed as if the girls in both groups got their share of washing dishes.

IQ differences had been successfully controlled and equal opportunities exist, this finding may be a reflection of egocentrism on the part of the disabled group.

In accord with the theoretical rationale employed herein, an attempt was made to observe and elicit information regarding conflict and cooperative behavior among the children in both groups.

Conflict was strikingly less evident in the lives of the disabled children. Someone, a nurse or child care worker, was always at hand to settle arguments and disputes. Numerous references were made as to the unusual status and particular needs of the disabled child in this regard. Presumably, this orientation may be shared by parents, siblings, peers, and other adults involved in the disabled child's life. In contrast, the non-disabled child lives in a world emphasizing the ethic of "taking care of" and "sticking up for one's self".

Insofar as friendship pairs and clique formation among peers bear directly upon the problem under investigation, an attempt was made to talk with mutual friends and observe them at play. The existence of cooperative behaviors in social and instrumental activities appeared similar in both groups. An indirect indicator of the efficacy of peer groups was the "grape vine" system found highly operative in both schools. The functioning of this informal communications network was revealed in the prior

knowledge the children had of the investigator and the nature of the interview sessions. Finally, best friend pairs, restricted largely to older children, were more prevalent in the non-disabled group.

While this presentation of qualitative observations has direct implications for the study at hand it, in addition, indicates the need and potential fruitfulness of intense long term observational study of the complex and contrasting social worlds of disabled and non-disabled children. This section, rather than being definitive, can serve as a qualitative adjunct to the quantitative data presented in the next sections.

Evaluation of Instruments

Information regarding the stability and equivalence of the measuring devices employed in this study may be obtained by scrutinizing score distributions and reliability assessments.[189]

The disabled group's distribution of responses on the C.O.T. reveal the following sequence of hard to easy: clay (weight), clay (quantity), marble, and straw problems. On the same tasks the non-disabled group presents a

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[189] Codes used in the following tables may be interpreted with the aid of the complete Code Sheet found in the Appendix, Item B. The entire frequency and percentage distributions for each task and their dimensions presented along with means and standard deviations may also be found in the Appendix, Item C.

different sequence marble, clay (weight), clay (quantity), and straw problems. The uniform finding has been that the achievement of concrete operations proceeds in the order of serialization, conservation (quantity before weight), and serialization.[190] With the exception of the clay problem the disabled group digresses from this pattern while the non-disabled group maintain it in its entirety. This departure from the norm on the part of the disabled group suggests a need for more detailed study of the horizontal décalage operation and may indicate the confounding influence of undefined variables.

The distribution of R.T.T. scores (first to second trial) reveal a practice effect from one trial to another. Scores on the first trial range from 1 to 6 and on the second trial from 1 to 10. The subject's understanding of direction may have produced this effect and should be closely attended to during the interviews.

Moreover, the scoring range on this task indicates the need for adapting and refining the coding criteria from its present adult form to a children's form. The adult range from 1 to 20 may involve categories that are overly fine or gross for children's story telling.

Answers to the preference questions on the succorance-nurturance dimension of the C.S.R.I.S. indicate

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[190] Swinton, op. cit.

a desire on the part of the disabled group to be in the succorance role and a wish to be in the nurturance role by the non-disabled children.

Although the two groups scored in the directions predicted by the hypotheses on the C.S.R.I.S., there are a considerable number of responses in the "both" category. There is no justification for considering this a neutral category and its extensive employment suggests a need for a more detailed set of codes and a more extensive scoring range.

The fairly even spread of ratings across the C.S.R.R.S. indicates that the raters did not distinguish between full and mid range ranks. Thus, it would not be justified to consider 1, 3, 5, and 7 as full ranks and 2, 4, and 6 as mid ranks.

The KR-20 Reliability for the C.O.T., C.S.R.I.S., and C.S.R.R.S. was found satisfactory for both groups in terms of the intra-task homogeneity or internal consistency check depicted in Table 1.[191]

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[191] Tabled critical values are taken from Roscoe, _op. cit._, p. 308, DF = 38, One-tailed test.

Table 1

Intra-Task KR-20 Reliability for C.O.T., C.S.R.I.S., and C.S.R.R.S. With Critical Values*

		Disabled	Non-Disabled
C.O.T.			
Code	26-28	.96	.91
	29-32	.90	.91
	33-34	.96	.87
	35-37	.99	.99
(Total)	26-37	.93	.94
C.S.R.I.S.			
Code	38-43	.64	.64
	44-49	.57	.60
	50-55	.74	.42
(Total)	38-55	.78	.76
C.S.R.R.S.			
Code	14-19	.75	.71
	20-25	.89	.80

*All Significant at $p < .005$.

Data on the reliability of the C.S.R.R.S. was supplemented by a split half and test-retest check. Consistent with Beller's previously reviewed report was the finding of a low negative correlation between the scale's dependence and independence dimensions.[192]

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[192] Beller, op. cit.

Table 2

C.S.R.R.S. Split-Half Reliability With Critical Values

Disabled	Non-Disabled
-.37 (p .025)	-.14 (N.S.)

The test-retest check on the C.S.R.R.S. was, in the case of both groups, low but significant. This finding of rating instability supports the decision, based on the teacher's reluctance to make the desired retest, to use only the first ratings in the data analysis.

Table 3

C.S.R.R.S., Test-Retest Reliability With Critical Values

Disabled	Non-Disabled
.34 (p .05)	.29 (p .05)

The two trials involved in the R.T.T. were employed in a split half reliability check. Although the existence of a practice effect noted previously may have inflated these correlations they were significant.

Table 4

R.T.T. Split-Half Reliability With Critical Values

Disabled	Non-Disabled
.44 ($p < .005$)	.56 ($p < .005$)

Inter-task correlations of the R.T.T. and C.O.T. are consistent with those found in the previously outlined studies by Feffer and associates.[193]

Table 5

Inter-Correlations of R.T.T. and C.O.T. With Critical Values

Disabled	Non-Disabled
.46 ($p < .005$)	.49 ($p < .005$)

Across all tasks and dimensions the KR-20 Reliability indicates a satisfactory inter-task homogeneity.

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[193] Feffer, op. cit.

Table 6

Complete Inter-Task KR-20 Reliability With Critical Values

Disabled	Non-Disabled
.75 ($p < .005$)	.74 ($p < .005$)

These intra- and inter-task correlations indicate a high degree of internal consistency and stability of the measures employed in this investigation. That is, the subject's performance in both groups was consistent within and between each of the tasks administered.

Inter-coder agreement or reliability was averaged and found satisfactory.

Table 7

Inter-Coder Reliability (Average)[194] With Critical Values

Disabled	Non-Disabled
.81 ($p < .005$)	.75 ($p < .005$)

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[194] These values were derived from assessments of inter-coder performance at the beginning, middle, and end of coding. Inter-coder correlations for the disable group were .72, .86, and .84 and for the non-disabled group .67, .75 and .83.

Coder assessment of the interview conditions were not found to differ significantly and tended toward fair to good.

Table 8

Mean Average Ratings of Interview Conditions With Critical Values
(Poor 1 - 3 Good)[195]

Disabled	Non-Disabled	T-Score	Probability
2.30	2.25	.17	(N.S.)

In addition to the previously outlined studies and qualitative observations, the quantitative evaluation of instruments provided above indicates a satisfactory degree of measurement reliability and validity.

The Hypotheses

Three empirical generalizations follow from the theoretical rationale outlined in earlier chapters. The first is that cognitive and social development are interrelated. Second is that normal cognitive and social development are a function of unrestricted socialization experiences. Finally, the third is that orthopedic disability

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[195] The criteria employed in these ratings involved the degree of rapport established, care taken in task administration, extent directions were followed, and adequacy of the setting (background noise, etc.).

restricts typical social experience and involvement and subsequently impedes normal cognitive and social development. These propositions become empirically testable when stated in terms of indicators and converted to hypotheses.

The first specific hypothesis states that the disabled group of children will enact the patient role to a significantly greater extent than the non-disabled group of children. The second specific hypothesis states that the non-disabled children will enact the agent role to a significantly greater extent than the disabled group of children. Enactment of the patient or agent role was determined by the subject's reponse to the questions of the C.S.R.I.S. and their ratings on the C.S.R.R.S. The mean averages and statistics on differences presented in Tables 9 and 10 indicate that the disabled and non-disabled groups respectively enact the patient and agent roles as predicted by the hypotheses. When averaged the percentage distributions tabled in Appendix C portray the proportion of children scoring high on the indicators. On the succorant dimension of the C.S.R.I.S. the disabled children scored high (3) 52.5 per cent and the non-disabled children 17.5 per cent. In contrast, the disabled group were high (3) on nurturance 12.3 per cent, while the non-disabled group 49.6 per cent. The disabled group scored 13.8 per cent and the non-disabled group 51.7 per cent. Inautonomy

for the disabled children was 53.8 per cent and 7.9 per cent for the non-disabled children. The average per cent scoring high (3) on the autonomy dimension in the disabled group was 11.6 and for the non-disabled children 49.8. The average per cent of disabled children scoring high (5+) dependence on the C.S.R.R.S. was 68.3 and for the non-disabled group 8.3. High (5+) scores on the independence dimension were received by 19.2 per cent of the disabled children and 85 per cent of the non-disabled group. Conceiving of these dimensions as part of the patient-agent construct suggests that the disabled children are more often in the patient role than the agent role and the converse for the non-disabled group.

Table 9

C.S.R.I.S. Mean Averages and Statistics on Differences with Probabilities (Patient 1 - 3 Agent)

Dimension	Disabled	Non-Disabled	T-Score	Probability
Succorant-Nurturant	1.60	2.32	3.58	$(p < .01)$
Restrained-Unrestrained	1.70	2.44	5.24	$(p < .005)$
Inautonomous-Autonomous	1.58	2.41	1.72	$(p < .05)$

Table 10

C.S.R.R.S. Mean Averages and Statistics on Differences with Probabilities

Dimension	Disabled	Non-Disabled	T-Score	Probability
Dependent	5.11	3.00	6.60	($p < .005$)
Independent	3.48	5.95	5.95	($p < .005$)

In all dimensions the mean averages reveal the disabled child's predominant enactment of the patient role and the non-disabled child's predominant enactment of the agent role. Moreover, the significance of difference between the groups performance was in each case at a level of chance occurrence of less than .05.

The third specific hypothesis states that the disabled group of children will display a significantly lower level of achievement of concrete operations than the non-disabled group of children. Partial support for this hypothesis appears in Table 11 depicting the two groups performance on the dimensions of the C.O.T. Average per cents on the C.O.T. reveal the following proportion of disabled children receiving right answers: Clay (quantity) Problem, 49.2 per cent; Marble Problem, 57.7 per cent; Straw Problem, 78.8 per cent; and Clay (weight) Problem, 34.2 per cent. On the same dimensions the non-disabled group's per cent of right answers are 77.5 per cent, 58.1

per cent, 87.5 per cent, and 71.7 per cent. These figures make manifest the disabled group's lower achievement of concrete operations than the non-disabled children on two of the four dimensions of cognitive development.

Table 11

C.O.T. Mean Averages and Statistics on Differences with Probabilities (Wrong 1 - 2 Right)

Dimension	Disabled	Non-Disabled	T-Score	Probability
Clay (weight)	1.49	1.77	4.46	($p < .005$)
Marble	1.54	1.66	.56	(N.S.)
Straw	1.79	1.88	2.97	($p < .01$)
Clay (quantity)	1.34	1.71	.42	(N.S.)
Total	1.54	1.76	1.51	($p < .10$)

The mean averages and significance of differences on the clay (weight) and straw dimensions indicates support for the hypotheses, while the marble and clay (quantity) problems failed to discriminate between the two groups of children. The direction of the overall scores was, however, significant at a low level.

The fourth hypothesis states that the disabled group of children will display a significantly lower level of role taking activity than the non-disabled group of

children. The outcome of the two groups performance on the R.T.T. is pictured in Table 12. On the R.T.T. 16.25 per cent of the disabled group received high (5+) scores, while 45 per cent of the non-disabled group scored high (5+) on role taking activity.

Table 12

R.T.T. Mean Averages and Statistics on Differences
with Probabilities
(Low 1 - 10 High)

Disabled	Non-Disabled	T-Score	Probability
3.05	4.68	7.49	($p < .005$)

The mean average and significance of differences between the two groups at a level of chance occurrence of less than .005 indicates clear support of this final hypothesis.

In brief, the hypotheses predicting a significant difference between disabled and non-disabled children in terms of social experience, and involvement (conceptualized by means of the patient-agent role and operationalized in the succorance-nurturance, restraint-unrestraint, inautonomy-autonomy dimensions of the C.S.R.I.S. and the dependence-independence dimensions of the C.S.R.R.S.) were upheld. Moreover, the hypotheses predicting a significant difference between these groups in terms of cognitive

development (operationalized in the conservation, classification, and serialization dimensions of the C.O.T.) and social development (as indicated by the R.T.T.) were also found to hold. Thus, the general hypotheses that achievement of concrete operations and role taking are a function of agent role enactment and are retarded by the enactment of the patient role are supported by the data resulting from this investiation.

Deviant Case Analysis

Examination of the distributions in Appendix C indicates a number of cases within each of the study groups which did not adhere to the scoring pattern predicted by the hypotheses. Although the number of overlaping cases between the two groups was not large, an analysis of deviant cases was undertaken. More specifically, the task scores within each group were arbitrarily divided at their mid-points into low and high sub-group scores. A "U" Test of significance between the cases in each of these categories was then carried out in terms of the variables age, sex, IQ, and program status. The Mann-Whitney "U" Test was employed because of the relatively small and unequal distribution of cases within each category. The next step in this analysis was to examine the frequency and percentage distributions of these variables within the low-high task categories. The intent of this scrutiny of deviant cases was to provide information that may suggest additional

variables to be considered, conceptual refinements, and possible reformulations of hypotheses.

The outcome of this analysis reveals the differences found significant between the low and high categories of both groups pictured in Table 13.

Table 13

Statistics and Probabilities on Differences within Group Low and High Scores

Task	Variable	U Value	Probability
Disabled Group			
C.S.R.I.S.	Age	32	($p < .05$)
C.S.R.I.S.	Sex	280	($p < .05$)
C.S.R.I.S.	IQ	174	($p < .05$)
C.S.R.R.S. (Indep.)	Status	36	($p < .05$)
C.O.T.	Age	69.5	($p < .05$)
C.O.T.	Sex	150	($p < .05$)
C.O.T.	IQ	40	($p < .05$)
C.O.T.	Status	187.5	($p < .05$)
Non-Disabled Group			
C.O.T.	Age	229.5	($p < .05$)
R.T.T.	Age	24.8	($p < .05$)

Most of the within group variation appears in the task performance of the disabled children. This finding is a preliminary indication of the complex nature of the relation of orthopedic disability and cognitive and social

development. The frequency and percentage distributions of the task scores and the variables outlined above are given in Table 14.

In the disabled group these findings indicate that the children in the older categories tend to score high on the agent role dimension of the C.S.R.I.S. and low on the dependence dimension of the C.S.R.R.S. Suggested here is the possibility of an increase in agent role enactment and a decrease in dependence as the disabled child grows older. This occurrence can be interpreted as reflecting the emphasis on increased autonomy with age prevalent in most cultures. The implication is that the effect of orthopedic disability as a restriction in social experience and involvement may diminish as the child grows older. A possible consequence in need of research is that disability may only be an initial barrier to normal cognitive and social development.

The finding that disabled males score higher on the C.S.R.I.S. but lower on the C.O.T. than disabled females may illustrate the interplay between environmental and maturational factors. The males high score on the C.S.R.I.S. is in agreement with his sex role expectation of autonomy, while the high score of the females on the C.O.T. may represent the biological precocity associated with their maturation.

Table 14

Frequency and Percentage Distributions for Within Group Low and High Scores

Task	Category	Variable	[f(%)]		
Disabled Group			(1) 1957-60	(2) 1961-64	
C.S.R.I.S.	Low	Age	16 (44.4)	20 (55.6)	
	High	Age	4 (100.0)		
C.S.R.R.S. (Dep.)	Low	Age	19 (65.5)	10 (34.5)	
	High	Age	10 (90.9)	1 (9.1)	
			(2) Male	(2) Female	
C.S.R.I.S.	Low	Sex	8 (40.0)	12 (60.0)	
	High	Sex	16 (80.0)	4 (20.0)	
C.O.T.	Low	Sex	21 (58.3)	15 (41.7)	
	High	Sex	1 (25.0)	3 (75.0)	
			(1) LA	(2) A	(3) BA
C.S.R.R.S. (Indep.)	Low	IQ	15(44.1)	12(35.3)	7(20.6)
	High	IQ	0	2(33.3)	4(66.7)
C.O.T.	Low	IQ	8(40.0)	8(40.0)	4(20.0)
	High	IQ	7(35.0)	6(30.0)	7(35.0)
			(1) In-Pat.	(2) Day	(3) Out
C.S.R.R.S. (Indep.)	Low	Status	19(55.9)	8(23.5)	7(20.6)
	High	Status		2(33.3)	4(66.7)
C.O.T.	Low	Status	9(45.0)	5(25.0)	5(25.0)
	High	Status	5(25.0)	5(25.0)	10(50.0)
Non-Disabled Group			(1) 1957-60	(2) 1961-64	
C.S.R.R.S. (Dep.)	Low	Age	9(100.0)		
	High	Age	12(38.7)	19(61.0)	
R.T.T.	Low	Age	3(25.1)	9(74.9)	
	High	Age	18(65.4)	10(35.7)	

The distinct relation of high IQ and high scores on the independence dimension of the C.S.R.R.S. and the dimensions of the C.O.T. coincide with the previously reported findings of Hartup regarding intellectual functioning and cognitive and social development. The suggestion here is that there is a need for a more detailed rendering of IQ scores and the possibility that the factors making for high intelligence may also make for high independence and achievement of concrete operations in spite of orthopedic disability.

In regard to the findings associated with the variable of program status it is clear that Day- and Out-patients score significantly higher on the independence dimension of the C.S.R.R.S. and the dimensions of the C.O.T. This finding reveals that the possible effects of institutionalization were not adequately controlled in the criteria of subject selection involving program changes during the last school term. Moreover, these figures imply that institutionalization may be a factor restricting typical social experience and involvement worthy of study in itself. The determination of the nature and consequence of this form of restriction could be of considerable sociological import.

The finding that the non-disabled children's performance on the C.S.R.R.S. dependence dimension was lower and their performance on the R.T.T. was higher with

increased age are in accord with the previously noted relationship of age and autonomy and the studies by Feffer and associates on the relationship of age and the achievement of role taking activity presented in an earlier chapter.

In addition to portraying the intricacy of the relationship of environmental and maturational factors, this deviant case analysis points to a paradox in attempts to deal with the developmental problems associated with orthopedic disability. On the one hand it indicates a need to provide special individualized education for those children able to derive its benefit and, on the other, the desirability of placing the disabled child in an environment that fosters typical social experience and involvement. Until more information is available considerable care should be given to weighing the advantages of these alternatives in light of each child's needs and potential.

Summary

Before concluding this chapter and considering the specific and general implications of this investigation a summary of previous sections is in order.

The purpose of this study was to empirically test the proposition that one of the social psychological consequences of orthopedic disability is the impairment of cognitive and social development. The assumption underlying

this empirical generalization asserts that normal development in these areas is a function of typical social experience and involvement. That is, ontogenetic development is a response to the everyday requirements of conflict and defense in the social arena.

The general hypotheses were advanced that orthopedically disabled children would, as a result of restrictions in normal social experiences arising from their deviant social position with its accompanying role expectations of dependence and inferior status, manifest a lower level of cognitive and social development than non-disabled children.

The subjects included two major groups of boys and girls between six and twelve years of age. One group was comprised of forty disabled children who were precision matched according to age, sex, and IQ to the other group of non-disabled children.

The social experience and involvement of these groups was conceptualized in the patient-agent construct and determined by the Children's Social Relations Interview Schedule covering the dimensions of succorance-nurturance, restraint-unrestraint, inautonomy-autonomy. The Children's Social Relations Rating Scale was employed by the subjects' primary teacher to ascertain information regarding the dimensions of dependence-independence. Moreover, cognitive development was assessed in terms of the conservation,

classification, and serialization dimensions of the Concrete Operations Tasks. Finally, social development was measured by the Role Taking Task.

Through these indicators, the specific hypotheses predicted that the disabled group of children would enact the patient role to a significantly greater extent than the non-disabled group and that the non-disabled children would enact the agent role to a significantly greater extent than the disabled group. Likewise, additional specific hypotheses predicted that the disabled children would display a significantly lower level of concrete operations achievement and role taking activity than the non-disabled group of children.

Difference of means tests for related samples indicate support for these hypotheses with an overall probability of chance occurrence, excepting the marble and clay quantity problems, of less than .05.

On the basis of these findings it may be concluded that typical social experience and involvement are necessary for the achievement of normal levels of cognitive and social development.

CHAPTER VI

ISSUES AND IMPLICATIONS

This final chapter will examine particular areas relevant to the research orientation employed in this investigation and the practical and theoretical significance of its findings.

Exploratory Issues

The evidence provided in this investigation is consistent with that outlined in the previously reviewed studies. The outcome of this study touches upon some interesting exploratory issues and suggests on the basis of its limitations, areas in need of additional research.

One of the most crucial questions concerning the apparently negative social psychological consequences of orthopedic disability mentioned previously is whether or not it constitutes an initial or a permanent developmental impairment. Additional research focusing on age specific maturational and developmental influences is needed to deal with this problem.

The observation that differentials in cognitive and social development exist between school grades (age being constant) suggests that opportunities and curriculum within classrooms may be influential.

The effects of family life variables and role models needs to be assessed. The degree to which parents call

attention to the existence of other points of view and require clarity in communication may make for differences in the extent a child will make inferences about the role attributes, thoughts, and feelings of others.

Cooperative and collaborative behavior in the various forms of social participation in childhood, play groups, cliques, and gangs, needs to be examined.

A related consideration is derivable from Kohlberg's treatment of moral development and the findings of this investigation. In his view the fundamental factor causing a structuring of the moral order is social participation and role taking. According to Kohlberg role taking involves an emotional or sympathetic component and the cognitive capacity to define situations in terms of rights, duties, reciprocity and the perspectives of others.[196] Implicit here is the possibility of measurable differences in level of moral thought between disabled and non-disabled children.

Similarly, little or no information exists on the incidence of particular interpersonal disorders in disabled children. In terms of the findings of this study and the thinking of Sullivan and Cameron outlined previously, it is conceivable that childhood schizophrenia may be more prevalent in disabled children than in non-disabled children of the same age. Issues relevant to this

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[196] Kohlberg, op. cit.

implication will be discussed in the next section.

Unfortunately the above is merely speculative suggestion. The major drawback of this investigation, with its emphasis on internal validity, is the inability to make valid generalizations. Before the employment of large scale sampling with its concomitant advantages in estimating probable error can be employed, however, certain methodological problems peculiar to this sort of research must be overcome. In addition to the confounding influences of multiple disability, difficulty arises because representativeness is limited to the extent to which access to a deviant population is dependent upon the external processes by which the deviant is identified. Although not lessening the possibility of sampling bias, investigations cognizant of this limitation may still provide insight into the developmental processes associated with disability.

This area of study requires continuous revamping of its designs, attention to the problems of reliability and validity, clarification of its conceptualizations, and systematization of its study materials in terms of their content and administration.

Application and Remediation

Due to the exploratory nature of this study, direct application of its findings is inappropriate. Its

contribution, however, has been to provide insight into the social psychological world of the disabled child and to indicate the utility of employing the notion of dialectic in conceptualizing the transition from one stage to the next. Moreover, the outcome of this study suggests the need taken up in this section to consider the possibility of training and remediation in regard to achievements in the area of cognitive and social development.

Information concerning the possibility of specific training and remediation in concrete operations and role taking is just beginning to appear. Virtually no data pertinent to these areas has as yet been derived from recent programs in general education established in the Geneva tradition.

In one of the first studies concerned with specific training problems Wohlwill and Lowe made an attempt to train seventy-two kindergarten children in the conservation of numbers.[197] Each of four groups of eighteen subjects were given different training experiences using both verbal and non-verbal forms of Piaget conservation of numbers tasks. They found improvement in all groups, including the control group that received no special training, on

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[197] J. F. Wohlwill and R. C. Lowe, "An Experimental Analysis of The Development of the Conservation of Number," C.D., (Vol. 33, 1962), pp. 153-167.

the non-verbal measures, but found no evidence of training effects with the verbal tasks. Since no data was provided on the stability of what learning did occur, these findings must be considered inconclusive.

Smedslund in the previously outlined series of studies attempted to induce proficiency in tasks representing operations involving conservation of weight, weighing, and adding and subtracting pieces of clay.[198] Insofar as the subjects made no significant gains in proficiency the results of this research were negative. Moreover, the investigator also reported an attempt to extinguish correct learned responses on the conservation of weight tasks. He found all subjects that acquired the concept through training readily extinguished, while those already in command of the concept resisted its relinquishment after many extinction trials.

Morf attempted to train subjects in the concept of logical inclusion of classes and reported that none of his procedures influenced preoperational strategies.[199]

In a study combining emphasis on concrete operations and role taking, Smedslund dealt with the capacity for transitive inference in attitude relations.[200] The

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[198] Smedslund, op. cit.

[199] A. Morf, "The Structure of Logical Inclusion," Studies in Genetic Epistemology, (Vol. 9, 1959), pp. 173-204.

[200] Smedslund, op. cit.

subjects included forty children between five and seven years of age. The task was to predict the choice of another after having been given particular kinds of information or cues. More specifically, the children were asked to predict the choice of a boy or girl between objects A and C after they had been shown that the boy or girl preferred A to B and B to C. Two of the forty made correct predictions consistently and none made use of the transitivity principle. The subjects' predictions were apparently influenced entirely by their own preferences and there was no evidence of the ability to perform transitive inference.

Fry conducted two studies designed to determine whether role taking activity could be increased through a program of communication training.[201] In the first study sixty-four fifth grade girls were assigned in equal numbers and matched according to IQ scores to a control group and three experimental groups. Following an overall pretest, each of the subjects in the experimental groups participated in five one hour training sessions carried out over a three week training period. In each session, speakers attempted to describe pictures and listeners attempted to identify the pictures on the basis of the

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[201] Reported in Flavell, The Development of Role-Taking and Communication Skills in Children, op. cit., pp. 191-206.

descriptions. After post testing all of the children, it was found that little evidence existed that the training the experimental subjects received had any effect on what was learned.

Fry's second study was similar to his first except he used only one experimental group that was given three types of training tasks instead of one and six one hour training sessions instead of five. The entire fifth grade class of a private school including thirty-seven boys and girls were used as subjects. Their natural division into two classrooms provided the experimental and control groups. As in the case of the first experiment the result of these efforts was the finding of no difference between the two groups. That is, the experimental evidence failed to show that the children who had participated in the training sessions had acquired any advantage in relation to the tasks in the course of their special experiences.

Looking over the evidence regarding the possibility of training and, consequently, remediation in concrete operations and role taking activity one must conclude that the prospects at this time appear limited.

The question must be asked, however, whether there is an inability to provide training in this area or an inadequacy of the programs attempted to date. In this regard additional study is called for.

A perhaps more promising focus would be on the

influence of social experience and involvement made manifest in this investigation, rather than on the feasibility of direct tuition. The implications of this conclusion are, however, far reaching and encompass broad aspects of general education. Some of the theoretical dimensions of this suggestion will be explored in the next section.

Theoretical Implication and Speculation

The basis for this exploration has been the notion that restructurings in the cognitive sphere are coordinated with new organizations in the social sphere. The focus of this study was the consequence of non typical social experience and involvement on the development of concrete operations and role taking.

Further, the findings of this investigation suggest that the social position of the disabled child is such that he may be impaired in his cognitive and social growth. In addition to the employment of the notion of dialectic as a compliment to the conceptualization of equilibrium processes involved in stage transitions, the patient-agent construct was advanced as a means of emphasizing the requirement of activity on the part of the organism for full development of potential.

The ideas underlying this construct provide insight into interpersonal relations in modern society.

According to Buber, man's dealing with his environment is at once intuitive and rational and personal and functional.[203] That is, relationships may be personal responses to others or mechanical manipulative adjustments to things. In sociological terms the former is primary, while the latter is secondary. The personal relationship is a subject standing with another subject and the mechanical relationship is a mere connection between experienced objects. Buber designates these respectively as I-Thou and I-It relationships.[204]

A number of contemporary writers have attended to what they have termed a "technological mentality" as a negative and dehumanizing by product of modern society.[205]

Social Science has been pointed to as a propagator of this thought way in its portrayal of man a mere battleground for biological drives and social pressures. Moreover, the inculcation of technical I-It orientations in professionals concerned with human problems have resulted in occupational love in the care fields and a quasi-objectivity in academic circles.

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[203] Buber, op. cit.

[204] Ibid.

[205] See P. Sorokin, Fads and Foibles, (Chicago: H. Regnery, 1956). L. von Bertalanffy, Robots, Minds and Men, (New York: G. Braziller, 1967). F. Matson, The Broken Image, (New York: Doubleday, 1964). A. Koestler, The Ghost in the Machine, (London: Hutcheson, 1968). V. Ferkiss, Technological Man, (New York: G. Braziller, 1968). T. Roszak, The Making of a Counter Culture, (New York: Doubleday, 1969).

The emphasis provided by Piaget and Mead is, in contrast, on man as "doer" and requires new thought on many of the current assumptions underlying professional ideologies.

This stand may be seen in opposition to the positions of Freud and Hull who view man as an organism that merely escapes stimulation and excitation. In their view motives are analogous to sexual or hunger drives that, when intensified, require the organism to act in order to reduce them and return to a quiescent state.

According to Piaget and Mead the person, in contrast, seeks out stimulation rather than avoiding and reducing it. If current structures are available the person applies them (assimilation) and if new meanings are required he creates them (accommodation).[206]

Viewing man as an active creature allows for a shift in perspective from intra-psychic theories of repressed hostility and conflict to the sociological aspects of interpersonal dialectics to help explain human development. The methodological implication of this focus on social context may mean that social-psychology can provide a more adequate balance of the multiple factors involved in the unfolding of human sociality.

Perhaps one of Freud's greatest contributions has been the continuous controversy that has surrounded his

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[206] Opper and Ginsburg, op. cit., p. 33.

thinking. The theories of both Piaget and Mead may be seen in response to debate with Freud's ghost. Through their efforts, aided by Marxian social philosophy and the neuro-physiology of Lindeman, the emphasis on processes involving conflict as a vital force in growth and change has moved from the depths of the subconscious to the social arena.[207]

Sullivan has expressed this position in his writings on the positive functions of anxiety. In his view interpersonal anxiety should be employed as a means of self education and therapy.[208] Contemporarily, Dabrowski asserts that extremes of personal conflict and defense, regarded by some as neurotic are, in fact, a necessary indicator of cognitive and social development.[209]

Of particular relevance at this point are the observations of Bruno Bettelheim regarding the positive functions of resistance and conflict and the consequences of their denial in the form of infantile autism.[210] Through a brief consideration of his thoughts in this area the dual theoretical emphasis on activity and dialectic in

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[207] Dabrowski, op. cit.

[208] Sullivan, op. cit. Sullivan points out however, that extreme conflict (terror) and the total absence of conflict (euphoria) are both pathological states.

[209] Dabrowski, op. cit.

[210] B. Bettelheim, The Empty Fortress, (New York: Free Press, 1968).

the present study can be aligned and summarized. Basic to Bettelheim's position is the negative outcome of restriction in infancy. In his words:

> . . . when the infant is kept from being active in the [mother-child] relation on his own terms, or when his actions evoke no response, he becomes flooded with impotent rage, a helpless victim. . . . The necessary frustrations of living while they shatter the infant's feeling that the world is his for the asking, also challenge him to learn to do something about it. That is, he must learn to manipulate his environment at each stage of his development as well as his capacities will permit. [He adds that] . . . it is a distinctly human experience to feel "I did it, and my doing it made a difference". . . . It is this conviction that leads to a spontaneous building of learned experience and personality, till complex series of events can be modified, mastered, stopped, and controlled as the particular personality decrees . . . . What made us what we are was not simply that we recognized causal relations, but what followed from it: the conviction that a sequence of events can be changed through our influence.[211]

Conclusion

In conclusion this investigation has contended and empirically demonstrated that a relation exists between thought and action. That is, typical social experience and involvement are necessary for normal cognitive and social development. Likewise, support has been given to the notion that developmental accomplishments are in part a result of an interplay of social forces that require the child to take into account the role attributes of others.

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[211] *Ibid.*, pp. 19, 45, and 30. (Brackets and emphases are added.)

While it is hoped that this study provides insight into the processes of development and illuminates the world of the disabled child, it should be seen as a ground breaking effort and its findings must be qualified as such.

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APPENDIX

APPENDIX ITEM A

Conversion Table for Intelligence Tests - Detroit Beginners, Detroit Advanced, California Mental Maturity (Prepared by Calgary School Board, Calgary, Alberta, 1968).

Percentile	Detroit Beginners		Detroit Advanced		California Mental Maturity		Laycock		Binet
	Actual	Converted	Actual	Converted	Actual	Converted	Actual	Converted	Perfectly Normal Curve
P5	82	80	100	81	72	77			75
P10	90	86	102	85	78	80	90	85	80
P20	97	91	106	90	86	88	96	90	87
P25	101	94	108	93	89	91	97	91	89
P30	103	95	110	95	92	93	100	93	92
P40	107	98	113	98	97	97	104	97	96
P50	112M	101	115M	101	102M	101	108M	100	100
P60	116	105	118	105	106	105	112	103	104
P70	120	108	121	108	111	109	116	107	108
P75	122	109	123	111	113	110	118	109	111
P80	125	112	125	113	116	113	120	111	113
P85	128	114	127	115	118	115			117
P90	130	115	129	118	122	118	126	116	120
P95	135	120	134	124	128	122			126
	Standard Error-5		Standard Error-3		Standard Error-5		Standard Error-3		

The scores of different tests have been converted in relation to the Stanford Binet test and percentile ratings are provided for all the intelligence tests used in elementary grades.

Although users should enter the actual Detroit and California Scores, in code, on the cumulative records, the converted scores will give you a more realistic appraisal of each child's ability. The percentile ratings may be useful in setting up groups for instruction e.g. Low-P25; Average-P30-75; High-P80.

APPENDIX ITEM B

GLENROSE PROJECT CODE SHEET

1. I.D.
2.

3. Match Number
4.

5. Month of Birth
6.

7. Year of Birth (last two digits)
8.

9.
10. Age in Months
11.

12. Sex (1. Male 2. Female)

13. I.Q. (1. LA 85-95, 2. A 96-111, 3. BA 112-125)

C.S.R.R.S. - Dependence

14.
15.
16.
17. (1-7)
18.
19.

- Independence

20.
21.
22.
23. (1-7)
24.
25.

C.O.T.

26.
27. Clay - Quantity
28.

29.
30. Marbles
31.
32.

33. Straw
34.

35.
36. Clay - Weight
37.

C.S.R.I.S. - Succorance-Nurturance

38. (Helped - helps)
39. (Preference)
40. (Receiver - Giver)
41. (Preference) SRI_1
42. (Follower - Leader)
43. (Preference)

- Restrained-Unrestrained

44.
45.
46.
47. SRI_2
48.
49.

- Inautonomous-Autonomous

50.
51.
52.
53. SRI_3
54.
55.

R.T.T.

56.
57. 1. 0 - 20 (Feffer)

58.
59. 2. 0 - 20

60.
61. Total 56 - 59

62. Mean 43 - 55

63. Mean 50 - 55

64. Mean 44 - 49

65. Mean 38 - 43

66.
67. Total Right 26 - 37

68. Total Right 35 - 37

69. Total Right 33 - 34

70. Total Right 29 - 32

71. Total Right 26 - 28

72. Mean 20 - 25

73. Mean 14 - 19

77. Grouped Age (1. Juvenile 1-18-64
6-15-60
2. Preadolescent 6-16-60
3-7 -57)

78. Status (1. Inpatient, 2. Day Patient,
3. Outpatient, 4. Nonpatient)

79. Interview Conditions (1. poor, 2. fair, 3. good)

80. Coder Number (1. Harrington, 2. Smith, 3. Final)

APPENDIX ITEM C

Tables of Task Percentages and Frequency Distributions with Means, Standard Deviations, and Statistics on Differences ("t" Scores and Probabilities)

Table A: Disabled Group Percentage and Frequency Distributions for the Concrete Operations Tasks with Means and Standard Deviations

[f(%)]

Question No.	Wrong	Right	$\bar{x}$ s	Code No.
Clay Problem - Quantity				
1	22(55)	18(45)	1.45 .50	26
2	21(52.5)	19(47.5)	1.47 .50	27
3	18(45)	22(55)	1.55 .50	28
Marble Problem				
1	24(60)	16(40)	1.40 .49	29
2	18(45)	22(55)	1.55 .50	30
3	15(37.5)	25(62.5)	1.63 .48	31
4	17(42.5)	23(57.5)	1.57 .49	32
Straw Problem				
1	8(20)	32(80)	1.80 .40	33
2	9(22.5)	31(77.5)	1.77 .42	34
Clay Problem - Weight				
1	26(65)	14(35)	1.35 .48	35
2	26(65)	14(35)	1.35 .48	36
3	27(67.5)	13(32.5)	1.32 .47	37

Table B: Non-Disabled Group Percentages and Frequency Distributions for the Concrete Operations Tasks with Means and Standard Deviations

[f(%)]

Question No.	Wrong	Right	$\bar{x}$ s	Code No.
Clay Problem - Quantity				
1	11(27.5)	29(72.5)	1.72 .45	26
2	8(20)	32(80)	1.80 .40	27
3	8(20)	32(80)	1.80 .40	28
Marble Problem				
1	20(50)	18(45)	1.47 .50	29
2	13(32.5)	25(62.5)	1.66 .47	30
3	13(32.5)	25(62.5)	1.66 .47	31
4	15(37.5)	25(62.5)	1.63 .48	32
Straw Problem				
1	5(12.5)	35(87.5)	1.88 .33	33
2	5(12.5)	35(87.5)	1.88 .33	34
Clay Problem - Weight				
1	12(30)	28(70)	1.70 .46	35
2	11(27.5)	29(72.5)	1.72 .45	36
3	11(27.5)	29(72.5)	1.72 .45	37

Table C: Concrete Operations Tasks

Statistics on Difference Scores Code No. 28-28 (No. Right)

	Mean	Variance	St. Dev.	DF
(1)	0.65	0.85	0.92	39
	T Score 4.46	($p < .0005$)		
	Code No. 29-32			
(2)	-0.05	0.41	0.64	39
	T Score -0.50	(No significant difference)		
	Code No. 33-34			
(3)	-0.23	0.23	0.48	39
	T Score -2.97	($p < .01$)		
	Code No. 35-37			
(4)	0.05	0.56	0.75	39
	T Score 0.42	(No significant difference)		
	Code No. 38-43 (Total)			
(5)	0.42	3.17	1.78	39
	T Score 1.51	($p < .10$)		

Table D: Disabled Group Percentage and Frequency Distributions for the Role Taking Task with Means and Standard Deviations

[f(%)]

	Score									
Q.No.	1	2	3	4	5	6	7	8	9	10
1	7(17.5)	12(30)	8(20.0)	9(22.5)	1(2.5)	3(7.5)	0(0)	0(0)	0(0)	0(0)
2	7(17.5)	12(30)	7(17.5)	5(12.5)	3(7.5)	4(10.0)	0(0)	0(0)	1(2.5)	1(2.5)

	$\bar{x}$ s	
1	2.85 1.41	Code No. 56-57
2	3.25 2.09	Code No. 58-59

Table E:Non-Disabled Group Percentage and Frequency Distributions for the Role Taking Task with Means and Standard Deviations

1	5(12.5)	2(5.0)	8(20.0)	12(30)	4(10.0)	3(7.5)	1(2.5)	5(12.5)	0(0)	0(0)
2	0(0)	4(10.0)	4(10.0)	9(22.5)	6(15)	9(22.5)	2(5.0)	2(5.0)	2(5.0)	2(5.0)

	$\bar{x}$ s	
1	4.15 2.03	Code No. 56-57
2	5.20 2.10	Code No. 58-59

Table F: Role Taking Task

Statistics on Difference Scores (Average)
Code No. 56-57, 58-59

Mean	Variance	St. Dev.	DF
7.06	35.58	5.96	39

T Score 7.49 ($p < .0005$)

Table G: Disabled Group Percentage and Frequency Distributions for the Children's Social Relations Interview Schedule with Means and Standard Deviations

[f(%)]

Succorant-Nurturant

Q.N.	1	2	3	$\bar{x}$ s	Code No.
1	26(65.0)	11(27.5)	3(7.5)	1.42 .63	38
2	14(35.0)	16(40.0)	10(25.0)	1.90 .77	39
3	25(62.5)	13(32.5)	2(5.0)	1.42 .59	40
4	15(37.5)	18(45.0)	7(17.5)	1.80 .71	41
5	25(62.5)	13(32.5)	2(5.0)	1.42 .59	42
6	19(47.5)	16(40.0)	5(12.5)	1.65 .69	43

Restrained-Unrestrained

Q.N.	1	2	3	$\bar{x}$ s	Code No.
1	28(70.0)	10(25.)	2(5.0)	1.35 .57	44
2	16(40.0)	22(55.0)	2(5.0)	1.65 .57	45
3	15(37.5)	21(52.5)	4(10.0)	1.72 .63	46
4	6(15.0)	19(47.5)	15(37.5)	2.22 .69	47
5	18(45.0)	17(42.5)	5(12.5)	1.67 .69	48
6	23(57.5)	12(30.0)	5(12.5)	1.55 .71	49

Inautonomous-Autonomous

Q.N.	1	2	3	$\bar{x}$ s	Code No.
1	19(47.5)	19(47.5)	2(5.0)	1.57 .59	50
2	19(47.5)	17(42.5)	4(10.0)	1.63 .66	51
3	19(47.5)	10(25.0)	11(27.5)	1.80 .84	52
4	22(55.0)	12(30.0)	6(15.0)	1.60 .73	53
5	22(55.0)	16(40.0)	2(5.00)	1.50 .59	54
6	28(70.0)	9(22.5)	3(7.5)	1.38 .62	55

Table H: Non-Disabled Group Percentage and Frequency Distributions for the Children's Social Relations Interview Schedule with Means and Standard Deviations

[f(%)]

Succorant-Nurturant

Q.N.	1	2	3	$\bar{x}$ s	Code
1	6(15.0)	17(42.5)	17(42.5)	2.27 .71	38
2	4(10.0)	11(27.5)	25(62.5)	2.52 .47	39
3	7(17.5)	14(3.5)	17(47.5)	2.30 .75	40
4	2(5.0)	13(32.5)	25(62.5)	2.57 .59	41
5	12(30.0)	15(37.5)	13(32.5)	2.02 .79	42
6	11(27.5)	9(22.5)	20(50.0)	2.22 .85	43
Restrained-Unrestrained					
1	5(12.5)	17(42.5)	18(45.0)	2.32 .69	44
2	1(2.5)	19(42.5)	20(50.0)	2.47 .55	45
3	3(7.5)	14(35.0)	23(57.5)	2.50 .63	46
4	2(5.0)	9(22.5)	29(72.5)	2.67 .57	47
5	3(7.5)	23(57.5)	14(35.0)	2.27 .59	48
6	4(10.0)	16(40.0)	20(50.0)	2.40 .66	49
Inautonomous-Autonomous					
1	8(20.0)	22(55.0)	10(25.0)	2.05 .67	50
2	4(10.0)	20(50.0)	16(40.0)	2.30 .64	51
3	0(0.0)	16(40.0)	24(60.0)	2.60 .49	52
4	1(2.5)	14(35.0)	25(62.5)	2.60 .54	53
5	5(12.5)	14(35.0)	21(52.5)	2.40 .70	54
6	1(2.5)	18(45.0)	21(52.5)	2.49 .55	55

Table I: Childrens Social Relations Interview Schedule

Statistics on Difference Scores

Mean	Variance	St. Dev.	DF	Code #
-0.15	0.28	0.53	39	38-43 (Dep.)
T Score -1.78	($p < .05$)			
0.12	0.11	0.33	39	38-43 (Both)
T Score 2.36	($p < .01$)			
0.58	0.30	0.55	39	38-43 (Indep.)
T Score 6.62	($p < .0005$)			
-1.80	3.04	1.74	39	44-49 (Dep.)
T Score -6.53	($p < .0005$)			
1.45	3.28	1.81	39	44-49 (Both)
T Score 5.06	($p < .0005$)			
0.60	0.86	0.93	39	44-49 (Indep.)
T Score 4.09	($p < .0005$)			
-2.98	2.64	1.62	39	50-55 (Dep.)
T Score -11.58	($p < .0005$)			
-2.15	2.03	1.42	39	50-55 (Both)
T Score -9.55	($p < .0005$)			
0.03	1.20	1.10	39	50-55 (Indep.)
T Score 0.14	(No significant difference)			

Table I: (continued)

Mean	Variance	St. Dev.	DF	Code #
-5.33	9.40	3.07	39	38-55 (Dep.) (Total)
T Score -10.98		($p < .0005$)		
-5.20	8.52	2.92	39	38-55 (Both)
T Score -11.27		($p < .0005$)		
0.08	1.61	1.27	39	38-55 (Indep.)
T Score 0.37		(No significant difference)		

Table J: Disabled Group Percentage and Frequency Distribution for the Children's Social Relations Rating Scale with Means and Standard Deviations

Dependence R F 1-7 Code No. 14-19

[Scale - f(%)]

Q. No.	1	2	3	4	5	6	7	$\bar{x}$ s
1	1(2.5)	1(2.5)	2(5.0)	12(30)	10(25)	8(20.0)	6(15.0)	4.92 1.39
2	0(0)	0(0)	1(2.5)	12(30)	12(30)	10(25)	5(12.5)	5.15 1.06
3	0(0)	0(0)	1(2.5)	16(40)	14(35)	5(12.5)	4(10.0)	4.88 1.00
4	0(0)	1(2.5)	2(5.0)	6(15)	15(37.5)	9(22.5)	7(17.5)	5.25 1.20
5	0(0)	0(0)	0(0)	8(20)	14(35)	13(32.5)	5(12.5)	5.38 .94
6	0(0)	0(0)	6(15)	7(17.5)	11(27.5)	11(27.5)	5(12.5)	5.05 1.24

Independence Code No. 20-25

[Scale - f(%)]

1	3(7.5)	4(10)	7(17.5)	17(42.5)	7(17.5)	1(2.5)	1(2.5)	3.70 1.29
2	4(10)	5(12.5)	13(32.5)	12(30)	4(10)	0(0)	2(5.0)	3.38 1.37
3	3(7.5)	6(15)	17(42.5)	7(17.5)	6(15)	0(0)	1(2.5)	3.27 1.24
4	2(5)	3(7.5)	11(27.5)	17(42.5)	7(17.5)	0(0)	0(0)	3.60 1.02
5	1(2.5)	6(15)	15(37.5)	9(22.5)	8(20)	1(2.5)	1(2.5)	3.50 1.12
6	2(5)	3(7.5)	18(45)	10(2.5)	7(17.5)	0(0)	0(0)	3.42 1.02

Table K: Non-Disabled Group Percentage and Frequency Distributions for the Children's Social Relations Rating Scale with Means and Standard Deviations

SRRS

Dependence Code No. 14-19

[Scale - f(%)]

Q.No.	1	2	3	4	5	6	7	$\overline{x}$ s
1	5(12.5)	9(22.5)	14(35.0)	8(20.0)	3(7.5)	1(2.5)	0(0)	2.95 1.20
2	1(2.5)	12(30.0)	13(32.5)	12(30.0)	1(2.5)	0(0)	1(2.5)	3.10 1.09
3	24(60.0)	6(15.0)	5(12.5)	2(5.0)	1(2.5)	2(5.0)	0(0)	1.90 1.39
4	1(2.5)	9(22.5)	15(37.5)	10(25.0)	5(12.5)	0(0)	0(0)	3.22 1.01
5	2(5.0)	2(5.0)	15(37.5)	17(42.5)	3(7.5)	1(2.5)	0(0)	3.50 .97
6	3(7.5)	5(12.5)	13(32.5)	15(37.5)	4(10.0)	0(0)	0(0)	3.30 1.05

Independence Code No. 20-25

[Scale - f(%)]

Q.No.	1	2	3	4	5	6	7	$\overline{x}$ s
1	0(0)	0(0)	1(2.5)	1(2.5)	21(52.5)	12(30.0)	5(12.5)	5.47 .84
2	0(0)	0(0)	3(7.5)	2(5.0)	13(32.5)	16(40.0)	6(15.0)	5.50 1.05
3	0(0)	0(0)	1(2.5)	3(7.5)	16(40.0)	16(40.0)	4(10.0)	5.47 .87
4	1(2.5)	0(0)	1(2.5)	5(12.5)	15(37.5)	12(30.0)	6(15.0)	5.32 1.19
5	0(0)	0(0)	0(0)	3(7.5)	11(27.5)	17(42.5)	9(22.5)	5.80 .87
6	0(0)	0(0)	0(0)	3(7.5)	18(45.0)	16(40.0)	3(7.5)	5.47 .74

Table L: Children's Social Relations Rating Scale

Statistics on Difference Scores Code No. 14-19 (Ave.)

Mean	Variance	St. Dev.	DF
-0.65	0.01	0.11	39

T Score -36.60 ($p < .0005$)

Statistics on Difference Scores Code No. 20-25 (Ave.)

-0.30	0.10	0.32	39

T Score -5.95 ($p < .0005$)

Table M: Disabled Group Percentage and Frequency Distributions for the Session Conditions with Means and Standard Deviations

[f(%)]

1	2	3	$\bar{x}$ s
7(17.5)	14(35.0)	19(47.5)	2.30 .75

Table N: Non-Disabled Group Percentage and Frequency Distributions for the Session Conditions with Means and Standard Deviations

[f(%)]

1	2	3	$\bar{x}$ s
7(17.5)	16(40.0)	17(42.5)	2.25 .73

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